

# **A Level Playing Field? Comparative Analysis of Political and Social Landscapes in Highland and Lowland India**

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by

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## CERTIFICATE

This is to certify that work presented in this thesis proposal *A Safe Playing Field? Comparative Analysis of Political and Social Landscapes In Highland and Lowland India* by *Naveesh Marwah* has been carried out under my supervision and is not submitted elsewhere for a degree.

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Date

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Advisor: Dr. Aniket Alam

*To Mummi, Papa and Ridhima*

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## Abstract

This thesis investigates the influence of geography on politics and social structures in India. This study specifically views geography as a driving force that actively shapes how politics evolve by particularly examining deviations from Duverger's Law. According to Duverger's Law, single-member plurality electoral systems typically result in two-party dominance. However, India is a notable exception to this law.

To test the hypothesis we perform a quantitative analysis on electoral data comparing India's Himalayan states to those in the Gangetic and Brahmaputra plains. The electoral data is operationalized using the Effective Number of Parties (ENP) which measures the degree of political fragmentation across parliamentary and assembly constituencies in both mountain and plain states. The results indicate that the plains are diverging from while the mountain states are converging towards Duverger's two-party equilibrium. Complementing the electoral data, this study also explores the gender dynamics of mountain and plain societies by using data from the National Family Health Survey and Census data over various parameters – namely, literacy rates, child marriage prevalence, contraceptive use, and breastfeeding practices. The parameters indicate the personal liberties of women and their agency in making decisions that affect their personal and family lives. Upon aggregating these parameters into a composite ranking system, we find that women in mountain states generally have more autonomy than those in plain states. To explain this, this thesis draws on anthropological and historical scholarship which postulates that mountain societies are structurally different from plain societies with regard to political and gender dynamics. Revisiting the theories of identity politics and strategic voting suggests that strategic voting alone cannot account for the observed deviations from Duverger's Law. This study engages with the idea of Zomia, first presented by Schendel and elaborated by Scott, which hypothesizes that highland communities across Asia are structurally different from plain communities, and have historically resisted state incorporation; developing more egalitarian and decentralized social systems. The results observed in our quantitative analyses are consistent with Scott's hypothesis which suggests that geographic differences be a reason for the difference. The study also includes detailed case studies of Himachal Pradesh and Manipur to illustrate how these dynamics manifest within individual states. By integrating electoral theory, sociological data, and regional case studies, this thesis offers geographical differences as a potential parameter to the understanding of Indian democracy.

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- [P1] Devesh Marwah, Aniket Alat "The High and The Low: A Comparative Analysis of Mountain and Plain Polities in India" in proceedings *International Conference on Humanity and Social Sciences*, 10<sup>th</sup> to 12<sup>th</sup> January, 2025. Japan
- [P2] Devesh Marwah, Aniket Alat *Edges of the Nation: Party System Divergence and Political Representation in Mountain India* under review *Studies in Indian Politics*, New Delhi, India.

# *Chapter 1*

## **Introduction**

### **1.1 Overview**

Geography has played a pivotal role in shaping human societies across the world. It has shaped cultures, traditions, health, economics etc. Rivers like the Ganges, Yangtze, Amazon provided fertile soil for the earliest agricultural settlements that grew into complex civilizations. However, rugged mountains and harsh deserts limited settlements and provided a natural fortress to the people who lived there. These terrains often determined the connection to other communities like fertile and arable lands provided by river valleys fostered large scale trade and network. High mountains, deserts on the other hand acted as barriers and isolated settlements for centuries. For example, the Taurus Mountains long kept Anatolia apart from the rest of Asia, much as the Atlas Mountains wall off North Africa. Mountains, rivers and swamps were natural borders as they were impossible to penetrate hence providing a degree of security and defensibility for political entities. Even in the modern day, these terrains behave as borders separating huge nation states. For example, the border between Alberta and British Columbia in Canada roughly follows the Rocky Mountains.

Geography also shaped the economic life of civilizations as abundant natural resources meant prosperity and extensive trade. Historically, regions with calm coastlines, riverbanks became important nodes of trade across the world. Economists like Smith, 1937 have argued how extensive trade, prosperity and bustling economy led to centralization of power and hierarchical structures. They presented that large economic structures cannot survive without a central power (Robinson & Acemoglu 2012). In lowland plains, societies often developed intensive labor agriculture leading to a great demand for labor. Organization of labor became necessary, and jobs needed to be divided. The elites could extract resources (grain, labor, taxes) from a concentrated population to build armies and bureaucracies. For example, The Kingdom of Kongo was formed to control the natural resources and imposed heavy taxes on the working populous and engaged in slave trade too. The mountain societies on the other hand, due to remote geographies didn't require these hierarchical structures. The population was more scattered, spread and, steep slopes, deep valleys, harsh winters, limited arable land imposed a cap on the agricultural surplus on these societies. Incorporating them in central structures was less profitable.

and exponentially more difficult due to the challenging terrain which needed to be traversed. Hence, the political structures in highlands were based on local autonomy and were more kinship based.

However, historically difficult terrains not only hindered state control but also influenced identity and representation. They were isolated from the plains in their own valleys which led to formation of their own unique identities, languages etc. These became refuges for cultures or religions different from those dominant in the plains. For example, minority groups such as the Maronites in Lebanon, the Kurds in the Zagros Taurus ranges, or the Alawites in Syria historically retreated to the mountains and sustained unique identities. Throughout history, centralized states have had to contest with communities living in difficult terrains as they formed isolated communities that resisted easy integration. Benedict Anderson in his seminal work "Imagined communities" elaborates on the conflicts between the plains and mountains. He argues that a central identity is important for building a modern nation state and these hill communities were often resistant to the idea due to their unique identities. He explains how the Thai government didn't allow development of writing systems and literature for hill tribe minority languages as this would preserve their identity which was seen as a threat to national unity (Anderson 1991). This would make them difficult to incorporate with the mainlands.

Mountain people have consistently demonstrated they do not want to live under the rule of outsiders, or often, even share a government with lowlanders

- Hammes, 2017.

Many such regions remained only loosely incorporated into pre-modern states. Over time modern states seeking territorial consolidation and national integration devised special policies to incorporate these peripheral areas. Steep terrain and isolated valleys has allowed highland communities to resist control by plains. In the Philippines, the Igorot peoples of the Cordillera Mountains successfully resisted Spanish colonization for over three centuries in the northern Luzon (W. H. Scott, 1970). A long struggle ended in the Spanish ultimately failing to conquer these highlands by the end of colonial rule in 1898. Due to difficulty in conquering these regions lowlanders have been forced to enter into negotiations with the mountain people. For example, imperial China recognized local chieftains (tusi) in the southwestern mountains and allowed them authority in exchange for their allegiance (Took, 2005). Nuba Mountains in Sudan provides explains how geographical isolation can create a strong collective identity among diverse tribal groups. It indicates that mountainous regions are susceptible to formation of regional political parties which cater to their different interests from the plains and identity due to their geography.

This has been observed in South Asia too and many scholars have presented qualitative arguments in the difference of behavior of mountains (Alam, 2008; N. Ali, 2019; Hussain, 2015; Murton, 2013). Such societies were called Zomia (Van Schendel, 2005). The idea was introduced by Van Schendel and expanded by Scott in his seminal book "The Art of not being Governed". They studied how geography has effected all aspects of life, not only in India but throughout the world where different communities have smartly used geography to escape state control. Scott argues that plains and mountains had different religious practices, economic activities, culture, party structures and gender expression. Hence, Scot-

points that the plains and mountains are structurally different from each other. In the modern era, we have observed in India how hills often have lower voter turnout compared to plains too. During the 2017 Uttarakhand assembly elections, hill districts like Tehri (55.68%), Pauri (54.86%), and Almora (53.07%) recorded significantly lower turnouts compared to the state's average of 65.6%. Remote terrain also leads to less development and modern amenities. This creates issues as often some people "left behind" in terms of development. The economies in hills are weak and often need basic amenities like road, water, jobs and electricity. These also become the political issues in the mountains. Recent elections have shown how increase in road network have increased chances of getting re elected (Basistha et al 2024). These issues are also present in plains but, they also focus on identity politics, as we will see later. Hence, the agendas of politics are also different in plains and mountains.

The above ideas are seen under the umbrella term of "Political Geography". Kitchin and Thrift, 2009 define political geography as "Geographical study of electoral systems and results but can, in a broader sense, relate to the varied processes through which spatial change is sought in, with, by, or to places". This thesis will focus on the Political Geography in India and see how geographical difference has led to different identities, cultures, economies which might affect the political structures in plains and mountains. This leads to our research questions.

## 1.2 Research Questions

1. How do the political systems of mountainous and plain regions in India differ quantitatively, and how have these differences evolved over time?
2. How do gender differences in mountainous and plain regions of India differ quantitatively, and how have these differences evolved over time?
3. What qualitative theories account for the political and gender expressions between mountainous and plain regions?

To study this we employ a mixed methods approach and use both quantitative and qualitative approaches to study the questions. This will help us cover significant depth and breadth in the problem. While a lot of Anthropologists and Political scientists have studied it qualitatively, we attempt to do so quantitatively. To study the politics of both mountains and plains we use party structure in the country as a proxy to analyze. Dominant political parties often serve as a reflection of the ideology of common people (Romeijn, 2020). By studying the dominant political parties of each district, we can see how different the regions are different politically. Party structure of national parties a country is a broad theme which can be operationalized in different ways. It can be studied by looking at ideologies of parties, member of parties, electoral performance, existence of formal party symbols etc. All of these will tell us about different facets of a country. By studying ideology of parties, we can find the spectrum of political thought within the country. Prevalence of centrist parties indicates a political culture that

favors moderation and vice versa. Studying the membership composition can tell us which segments of society align with particular parties depending on their age, ethnicity, socioeconomic status etc. Logos reflect how parties communicate their ideas to people. Logos can be deeply embedded in culture, history etc and show themes among public. Analyzing electoral performance has been the most common way of judging a party. It tells us which regions align with a party and national support suggests a party's broader appeal. Analyzing electoral performance over time can also indicate shifts in public opinion. In this study, we analyze the electoral performance albeit differently. We operationalize the electoral results using Duverger's law which has been a central law in politics for decades and predicted rise and fall of party systems for decades.

Our second research question focuses on the differences in freedom of gender expression for both the regions. Scott argues that mountainous and remote societies allow for more freedom and expression for women than the plain societies which are under strict hierarchical structures. We use a combination of unique parameters from NFHS dataset (National Family Health Survey) which are not used together before and combine them together to study how much women get support from families, financial independence, education, bodily autonomy etc. This multitude of factors will help us verify our hypothesis.

In the end we investigate the possible reasons for these differences to establish causation for the given results without further detailed quantitative analysis for which the data is currently missing. However, we discuss possible reasons for our results and dig deep in literature for scholars who have found similar ideas not only in India but across the world. As discussed above, Zomia is one of the possible reasons for the same. The explanations can vary from definitional variations of Duverger's law to the idea of Zomia and beyond.

### 1.3 Challenges Faced

**Data Collection** This study involved scraping data from Election Commission of India (1991) website which is un-scrapable after a few attempts. To bypass this, we used a web browser simulator known as **Selenium**. Selenium is a python library widely used for web scraping, automated testing, and repetitive browser tasks. It provides functionality for web scraping, automated testing, and repetitive browser tasks. The ECI provides data for older elections in PDF format which required use of python libraries to scrape and collect data. After scraping, a few constituencies had different names for different years. For example, NAINITAL was named as NAINATAL (missing an I). For this we use fuzzy word matching which uses Levenshtein distance to calculate the distance between words. The data was compiled after manual verification for each state.

## 1.4 Thesis Overview

- **Chapter 1**(current chapter): Provides a base for the study and introduces readers to the background required for the study.
- **Chapter 2** The second chapter contains the literature review of the thesis, which discusses the history of electoral politics in India. It conducts a review of electoral politics in the Northern Mountains i.e. Himalayas of India and also provides a detailed review of the development of Duverger's law, not only in India but across the world. We also look how mountain and plain societies are structurally different across the entire world. We focus on Indo-Zomias studying in detail and study what various other authors presented about it.
- **Chapter 3:** The third chapter aims to answer the first two research questions and is divided in two halves. The first half tries to explain how Duverger's Law works in India's mountain and plain states. We also look at whether the mountain regions in India have some structural political differences from the Indo-Gangetic plains by analyzing the electoral trends from 1977 to 2014. The second half focuses on the differences in gender expression. The chapter presents the methodologies in detail and verifies the hypothesis of Zomia by using quantitative approaches.
- **Chapter 4:** The fourth chapter focuses on the third research question. We emphasize on the plausible reasons for the difference between mountain and plain societies. These include strategic voting, identity politics and Zomia. We identify that the areas of identity formation often result from the resistance against the centralized power, as in the case of the formation of the Pahari identity in Uttarakhand as well as ethnic conflicts in Manipur. Also, structural difference between plains and mountainous society in terms of the economic role of women, patriarchy and kinship structures are highlighted. The chapter also compares how these characteristics are integrated marginalized by post-colonial nation states like India and Pakistan. To conclude, we take case studies of Himachal Pradesh and Manipur to analyze how these changes are not just limited on a national level and can be seen at minor state differences.
- **Chapter 5:**This is the concluding chapter which summarizes the key insights like how the study has attempted to understand the applicability of Duverger's law within the Indian context in light of state based social cleavages, geographical isolation and political autonomy shaping electoral outcomes in mountains and plains. In the end we discuss the future scope for our work.

## *Chapter 2*

### **Literature Review**

#### **2.1 Introduction**

In this chapter, we conduct a review of studies pertaining to Indian electoral politics and cover a brief history of the same. India started out with Congress as the single largest party (Kothari, 1967) but it soon fragmented to give rise to smaller parties due to India's diversity with people having different identities from various faiths, castes, creed etc. We conduct a review of what were these identities and how they manifested differently in plains and mountains. We study the difference in identities due to plains and mountains not only in India but across the world. As we have operationalized the electoral results of India via Duverger's law, we conduct a thorough review of Duverger's law in India and across the world (Duverger, 1954). We also look at the different explanations for the structural differences between mountain and plain societies. A well known explanation for differences is the concept of Zomia, a phenomenon that is not confined to India but is observed worldwide. In this literature review, we explore the concept of Zomia in depth and examine how similar contemporary theories have emerged in different parts of the world.

#### **2.2 Electoral Politics of India**

##### **2.2.1 Post Independence Era**

From 1952 to 1967, the Indian political landscape was largely dominated by the Congress party. This was due to Congress being the face of Indian struggle against the British rule (Shastri, 1991). Congress established a political hegemony, as Kothari, 1967 pointed out it being an "umbrella organization". In this system Congress party formed a coalition featuring representatives from all castes, religions and ethnicities to account for the diverse identities in India (Anand, 2015). It formed a careful system of checks and balances for these groups and a meticulous system to resolve disagreements. Kothari, 1967 also called it as a "party of consensus" as it tried to emulate the diversity of India in the party. This division within Congress would help to reflect larger society and would help make 'policy making' better. However, some factions felt that their demands were not being listened and felt alienated from

the decision making process. This led to rise of smaller groups with distinct identities unlike Congress who advocated for a collective nation building (Shastri, 2003). Congress's inclusion of various sectors was symbolic, and it was headed by elite leaders only. The Congress system did help democratic ideas grow and let society try out changes safely, but it wasn't good enough for full-blown competition in politics with big social changes (Shastri et al., 2009). Congress faced its biggest challenge from Lok Dal in the 1960s (DeSouza & Sridharan, 2006). Post independence, India was divided in two parts due to partition which laid the foundation of India's divide on the basis of religion. This, along with rising tensions between different castes led to formation of new "identities" and rise of identity politics in India.

### **2.2.2 Rise of Identity Politics in the Northern Plains**

Identity politics is defined as

A tendency for people of a particular religion, ethnic group, social background, etc., to form exclusive political alliances, moving away from traditional broad-based party politics.

(Oxford University Press, 2024) In India, identities were formed on the basis of caste, religion, language, ethnicity etc. These identities started gaining momentum in the 1960s which led to the State Reorganization Commission which divided Punjab in Haryana (a Hindi-speaking, Hindu-majority state) and transferred a few areas to Himachal Pradesh ("The Punjab Reorganisation Act", 1966). It is interesting to note Congress's support base during this time as, the Congress won 50 of the 79 reserved Scheduled Caste constituencies and 29 of the 37 Scheduled Tribe constituencies, but it also had the support of the rich in New Delhi. Congress heterogeneous support group gave it power in various states but also made it fragile at the same time. It was difficult to maintain such a support group in different sects of society and with each iteration of elections and rise of state parties, Congress kept losing its base. The rise of Janata party in the 1970s and introduction of Mandal commission led to rise of a "Market, Mandir and Mandal" politics in India (Yadav, 1999). The differing caste politics forced parties to adapt their strategies regionally and social engineering became key. For example in UP in recent elections the BJP's candidate selection included many OBCs (including Non-Yadav OBC groups like Kurmi, Lodh, Jat, Gujjar) and Dalits, alongside upper castes (Jaffrelot & Verniers, 2012). In Bihar BSP despite its Dalit core base, started wooing Brahmins since the 2000s ("Brahmin-Dalit bhaichara" committees) to expand its appeal (Ankit, 2018). These identities were not limited to caste only. In Punjab, religious identity (closely tied with linguistic and regional identity) has been central but took a different trajectory. Even after the state re-organization commission, unresolved issues like the status of Chandigarh and sharing of river waters increased tensions (Padhiari & Ballabh, 2008). This led to rise of separatist movement in the 1980s and a separate "Sikh" identity which is still a part of politics led to rise of communalism in Punjab (Gupta, 1985). These identities often mixed with each other too. This was noticed in Bihar during the 1990s after the implementation of Mandal Commission which caused a huge backlash from the upper castes and caste based parties also increased. This coincided with the

rise of Ram Janambhoomi movement too and was termed as "Mandal vs Kamandal" politics by analysts (Roy & Doshi, 2024).

### **2.2.3 Politics in Northern Mountains of India**

Most mountain states in India were formed after separating from plain states and were slowly incorporated in India. A lot of North-Eastern mountain states were given a state status under the "The North-Eastern Areas (Reorganisation) Act", 1971. Politics in Himachal Pradesh is dominated by upper castes as Rajputs and Brahmins together constitute about 50% of the population. However the politics in both Himachal and Uttarakhand does not revolve around caste. Instead, it revolves around a regional distinct identity i.e. "Pahari" identity (S. Mishra, 2000). Sikkim transitioned from a monarchy to become the state of India after a referendum held on April 14, 1975 (CODE, 1979). This was not uncommon as mountain states were often given special status to slowly incorporate them within the state. For example, the Autonomous district councils designed to provide self-governance to preserve and promote the cultural and social practices of indigenous communities (Pautunthang, 2024). The Assam province inherited from the British initially included much of the region (except Manipur, Tripura, Sikkim). However, tensions emerged as Assam advocated for Assamese to be its sole state language under the Assam Official Language Act of 1960. Soon, calls of new separate hill districts began and hill leaders started to rally massive support under them (Inoue, 2005). The formation of All Party Hill Leaders Conference legitimized the movement and the struggle officially started. Nagaland was the first state to be formed in 1962 after a decade of violent insurgency. However, scholars have presented that formation of Naga state was due to India's war with China but a section of Naga leaders initially lobbied for joining the Union of Burma (which had its own Naga tribes and a more federal arrangement at the time) (Johari, 1975; Wouters, 2023). After the 1962 Sino-Indian war, North East became an important strategic frontier and, it became important to respond to the demands of locals. In 1972 Meghalaya was formed as a response to the movement for Garo and Khasi hills. Manipur and Tripura, which had both been princely states that merged into India were also given statehood in 1972. However Manipur saw violent uprisings due to clashes between the tribes in the plains and mountains. Arunachal Pradesh (formerly NEFA) was awarded full statehood in 1987. It followed a different trajectory as it was initially under the influence of Elvin Verrier where he advocated for leaving Arunachal alone and slow integration of NEFA in India while respecting tribal rights (Das, 2008). However after the 1962 war, the Indian state began increasing its influence in the region due to its proximity with China who was claiming it to be a part of South Tibet. Scholars have argued that Arunachal's statehood (1987) was more of an international statement rather than a response to local demand as the movement for statehood there was minimal compared to other states.

## 2.3 Duverger's law

### 2.3.1 Definition

Maurice Duverger, a prominent French political scientist introduced a principle in the mid 20th century that has become foundational in the study of electoral systems. "Duverger's law states that electoral systems that follow a single-member plurality system (SMPS) such as India where the winner takes all tend to result in the dominance of two major political parties" (Duverger, 1954). Popular examples for this are the USA and UK elections, where this has been observed. However, this is not a firm law as it does not hold in India and Canada. Two primary mechanisms have been identified through which electoral systems influence party structures in relation to Duverger's law:

1. **Mechanical effect** The mechanical effect is due to direct result of Duverger's law because of only two parties in play, smaller parties often struggle to get their share of seats even when they are getting good amount of vote share. Often, Duverger's law has been used to study national level competitions, but the essence of this law has often been identified on district level (Cox, 1997; Gallagher, 1991; Lijphart, 1994; Rae, 1971). Increase in competition between multiple parties at a district level indicates a higher competition at national level too.
2. **Psychological effect** This is a direct response to the mechanical effect by the voters and political elites. For example, knowing that smaller parties have little chance of winning, voters avoid wasting their votes on them, instead opting for one of the major contenders. Similarly, political elites may choose not to enter the race under unfavorable conditions or may form coalitions to enhance their viability.

### 2.3.2 Duverger's law around the world

Duverger's law has been a part of various debates around the world and has found its ground in the USA (Republicans vs Democrats) and UK (Conservatives v/s Labor). In UK, smaller parties like Liberal Democrats Party often receive a decent vote share but almost no seats. Duverger originally presented it only as a theory but with time many mathematical proofs have emerged to prove it. Palfrey 1989 presented a mathematical proof of Duverger's Law under strategic voting conditions using game theoretic models. Cox, 1997 presented a study where he offered a general theory and proof of Duverger's law and presented the  $M + 1$  rule. The  $M + 1$  rule argued that in a district with  $M$  representatives and a system where person with most votes wins with no proportional representation, no more than  $M + 1$  candidates would exist. In case of Duverger's law, hence it predicts at most 3 parties. Duverger's law for the longest time was studied as static i.e. the equilibrium of two parties remains for a long time but studies by Forand and Maheshri, 2015 showed how countries move toward or away from the Duvergerian equilibrium over time. They show that strategic behavior can lead to convergence toward two-party competition over time if any unexpected shocks don't happen. This is specially important in the context of the thesis as we explore whether states converge to Duverger's law over time slowly.

Duverger's Law has also been validated in countries where changes to the electoral system over time have created natural experiments for observing its effects. In New Zealand, it had a two-party system (National vs. Labour) under FPTP (First past the post) for two decades which confirmed to the Duverger's law. However, after 1996 it switched to a mixed member proportional (MMP) system. This resulted in smaller parties gaining representation proportionately to their votes and New Zealand became a multi party system (Dunleavy et al., 2008; Eberhard, 2017). The opposite happened in Italy where they switched from a PR system to adopting a largely plurality-based mixed system in the 1990s. This led to there party system changed from being a highly fragmented multi-party system to a dual party competition (D'Alimonte et al., 2012; Reed, 2001). Essentially, parties merged or formed pre-electoral alliances to avoid splitting the vote in the districts. Similarly, Japan shifted from a single non-transferable vote (SNTV) system (multi-member districts) to a mixed system with single member districts in 1994. Under SNTV, Japan had one party dominance (the LDP) but also multiple smaller parties and intra-party factional competition. Under the new system, the party system reorganized into roughly two major blocs (LDP vs. opposition) in many districts (Reed, 2007).

However, there have been several critiques of the Duverger's law. It doesn't follow in some countries, notably India and Canada (Gaines, 1999), the case for Indian exceptionalism will be elaborated later. Even though the law is often studied on a national level, Duverger himself presented that the law is best understood at a district level (Diwakar, 2007). There have been limitations of strategic voting (the psychological effect) in explaining the Duverger's law as different reasons have been found to explain the same. In some cases, people vote for there preferred party to express there protest (Ziegfeld, 2021). Coordination failures (where supporters of an alternative can't agree on which major party to back) or protest voting can lead to more than two significant parties even under FPTP (Singer, 2013). Mathematically it has been formulated that Duverger's law often leads to parties having the same ideology or completely polarizing opposing ideologies (Fey, 2007). However, in practice it has been seen that parties often converge to similar ideologies because polarizing ideologies often lead to rise of a median party. Duverger's law narrows the choice of voters and sidelines minorities due to which only two dominant ideologies emerge.Hence, it leaves very little practical choice for the voters.

### 2.3.3 Duverger's law in India

India's divergence from Duverger's law was first presented by Lijphart, 1994 as he presented that Congress was in a special position due to them being a figurehead of India's independence movement. He argued that India's vast social diversity, including various ethnic, linguistic, and religious groups would lead to social cleavages and predicted the rise of smaller regional parties. Sridharan, 1997; Taagepera and Shugart, 1989 also presented the same rational as above and predicted a rise of local parties. The first statistical analysis on India specifically is done by Chhibber and Kollman, 1998 who presented in an extended analysis that India follows the Duverger's law and reported the India's ENP at the time to be 25. In an extended study later, they first studied the Indian assembly constituencies and

presented that India's assembly constituencies followed Duverger's law (Chhibber & Kollman, 2009). Diwakar and Chhibber also used Lok Sabha and assembly constituencies respectively to study the trends of Duverger's law. India as a notable exception to Duverger's law was later extensively documented in the literature (Diwakar, 2007, 2010; Mayer, 2013; Vaishnav, 2014). While Diwakar's analysis primarily focused on district level electoral competition through Lok Sabha constituencies, subsequent research has expanded to include Assembly constituencies as well. Studies on assembly constituencies attribute deviations from Duverger's law to India's federal structure (Chhibber & Murali, 2006). However, most existing studies have approached this analysis to analyze India as a whole with only limited examination of state level variations. Mayer, 2013 made important contributions by analyzing plains states but, there remains a significant gap in understanding how Duverger's law operates in India's states and variations between regions. Mayer's work extends this literature by focusing on ENP values across 15 of India's most populous states. However, his analysis largely omits the Himalayan and other mountain states. Mayer investigates qualitative factors such as dummy candidates, party fission, and the presence of regional parties, but finds limited explanatory power in these variables.

This thesis builds upon this body of work by introducing a new explanatory dimension: geographical structure. We argue that the divergence in ENP trends between India's mountain and plain states may be rooted in long standing geographical and historical differences. This idea has been explored in qualitative anthropological and historical literature through the concept of Zomia. Although the effects of modernization and state integration are gradually narrowing these historical divides, our findings suggest that remnants of these structural differences continue to shape electoral outcomes.

## 2.4 How Mountains Are Different from Plains

### 2.4.1 World wide

Geography has worked as an escape zone for various individuals in the past who wanted to escape the control of monarchies or colonial power. These geographical divides have often led to rise of resistant movements across the world and communities living there have often used it to their advantage. In the Americas, Maroon communities consisted of escaped slaves often living in hard to reach areas like mountains or dense forests resisting colonial control. Their descendants emerged as a form of resistance to slavery (Price, 2020). They created resilient communities in inaccessible regions such as mountains, swamps, and dense forests to escape the hierarchical structure of state. Jamaican Maroons forced the British to sign treaties in their favor and Suriname Maroons persisted despite state pressure. Geography helped the black, indigenous, queer and poor people to escape the dominant state system where they were not accepted. They were called "undercommons" in the USA and used universities to escape the state control (Harney & Moten, 2013). Anthropologist studies have shown how remote communities have tried to avoid centralized authority and are acephalous (without a leader) in nature (Graeber, 2004). Examples like Tiv of Nigeria and the Piaroa of Venezuela show how they avoided power in one hand. Tsimihety of Madagascar evaded both monarchy and colonial rule through strategies of withdrawal and

dispersal. Authors have argued that instead of being backward or primitive, these societies are stateless by choice. Using technology to there advantage along with legal and international avenues many small communities have exercised there right to remain in isolation (Bodley, 2012, 2014). Bodley develops the idea of "adaptive governments" which are based on consensus systems to defend against large corporations. Vandana Shiva presents how small scale farming systems allow communities to resist corporate and state control over food systems (Hrynkow, 2018). She argues that "seed sovereignty is very important for farmers as it allows them to be independent and self reliant. These tribes also practiced such farming practices to evade state control.

These geographical divisions have led to an increase of tension between mountain and plain communities, leading to major geopolitical conflicts. The differences are also evident across South East Asia, like in Gilgit-Baltistan, a mountainous region in Pakistan where the local population has often felt disconnected from mainland Pakistan. Among the natives of the region there is a sense of betrayal against the Pakistani government due to the neglect and systemic exclusion. Scholars and authors have highlighted that this divide is partly rooted in religious-sect differences as Gilgit-Baltistan is predominantly Shia while the rest of Pakistan is Sunni-dominated. However, it is also argued that geography plays a significant role in this dynamic. The region's remote, rugged terrain has made it difficult to integrate fully into the national framework increasing the feeling of isolation and alienation (N. Ali, 2019). Similarly, in the Hunza region of Northern Pakistan remoteness is not just a geographical condition but, it has been used as a tool for bargaining. They have been thought of as barbaric and uncivilized (similar to Zomia) but, it has used remoteness to promote tourism in the region extensively as a "lost paradise". Hills were used as tool to resist against central powers by Nagas as they hid in the Naga Hills-Tuensang Area and Patkai mountain (Kapai, 2020).

The above examples clearly show that geography in terms of forests, swamps, mountains have clearly played an important role for people to run away from state control and use it to their advantage. In next section we will study the case of India as Southeast Asia is home to some of the world's tallest mountain like the Himalayas and is also the region where "Zomia" is located.

#### **2.4.2 Indian Case**

The division between mountain and plain societies has been evident in the Indian subcontinent since the colonial era. The British Empire in India governed the mountainous Northwest Frontier (today's Pakistan-Afghanistan border) through indirect means. British enforced the Frontier Crimes Regulations via local Pashtun Maliks rather than imposing regular law. This meant more local autonomy for the Pashtun chieftains and acknowledged the difficulty of Britishers in gaining control (S. S. Ali & Rehman, 2013). This colonial arrangement remained in independent Pakistan as the Federally Administered Tribal Areas (FATA). This was a longstanding issue as Pakistan finally merged FATA into Khyber Pakhtunkhwa in 2018 after years of struggle and militancy (Horgan, 2008). A similar issue can be observed in the Jammu & Kashmir state of India where a special status under the Article 370 was granted to the state which was abruptly abolished in 2019. States have been forced to give away

there autonomy and give exemptions to incorporate these remote regions in the state. Article 371A in India, gives Nagaland state control over its customary laws and land rights. Sikkim has been given special exemption from income tax laws as Sikkim operated under its own tax laws before it was merged into India in 1975. These exemptions were preserved under Article 371F of the Indian Constitution. Similarly, autonomous constituencies are present in Assam, Manipur and Ladakh to empower indigenous communities and ensure self-governance (Pathak, 2016). These councils can make laws on subjects such as land use, forest management, agriculture and village administration. They also have the authority to establish courts for cases involving tribal members, provided the sentences do not exceed five years of imprisonment. Apart from the provisions in the constitution there have been electoral differences in the voting patterns as explained in the results in the next chapter.

## 2.5 Zomia

The term Zomia was introduced in 2002 by Dutch scholar Willem van Schendel to refer to the vast mountainous region present on the edges of South and Southeast Asia. Van Schendel argues that the state boundaries in this region were drawn arbitrarily, with little regard for existing social and cultural divisions. The term derives from Zomi, meaning "highlander" in local Tibeto-Burman languages (Van Schendel, 2005).

Scott (J. C. Scott, 2009) further elaborates on this and extends the existence of the Zomia framework. He presents that Zomia is a "stateless society which was the last escape zone and has resisted incorporation into the power of centralized states". In modern day, the Zomia region consists of the Mountains in North, North east of India, Tibet and mountainous regions of South East Asia (Himalayan mastiff). Initially the central Himalayas were not a part of this framework, but studies show that the Zomia framework can be used to explain the Central Himalayas (Shneiderman, 2010). These remote areas in the Himalayan mastiff were historically used to exile unwanted people (due to religious and ethnic conflicts) but Scott argues that it was not always the case. The majority people in these societies deliberately left the state in order to escape it and do trade without any restrictions and escape the crutches of hierarchical divisions and feudal governments to form more egalitarian governments which gave more freedom to women too. These areas were important passes and present on international routes and hence could be easily controlled. Due to their importance, attempts were made in history by kingdoms to incorporate them into states but mostly backfired due to the extreme remote nature of the districts. Often these areas were ignored by scholars due to the remoteness and lack of documented history especially in the Chinese side of the Himalayas which has very strict rules for journalists and data collection. All these restrictions are increased due to the lack of knowledge about the language making it a difficult but important region to study. Although labeled backward/tribal by the state due to their limited history, Scott argues that they have deliberately avoided writing and not have written records, hence the oral history of these areas becomes an important aspect of study for us. He argues that such states tend to be politically different from the mainland and are egalitarian and free of the



Scott, 2005 who gave a detailed theory of Zomia which is applicable in the Northern mountains of India. However, limited study has been done to actually study this gap quantitatively. Studying this gap using CS tools and statistics will give us a definite answer and either prove or disprove the Zomia hypothesis. We also looked at how Duverger's law operates within different parts of India, particularly the northern mountain states and how these variations contribute to the broader understanding of Indian electoral politics. Here, we will use Duverger's law as a proxy to study the political structure of India. This thesis will contribute to the fundamental understanding of how identities are built from a geographical perspective. It will also help us understand the role of national politics in state and how minorities have always tried to evade this control. With the growth of secessionist sentiment in North Eastern states like Nagaland and ethnic riots in Manipur as the question of formation of identities is of increased relevance.

## *Chapter 3*

# **Identity, Gender, and Electoral Variations in India's States**

### **3.1 Introduction**

In the previous chapter we saw an outline of how mountain societies differ from plains societies. In this chapter we will study the Duverger's law in the Indian context and analyze its implications on the mountain and plain polities. We will look at the dataset, methodology and trends along with a brief explanation of the trends. This chapter aims to uncover whether the political structures of India's mountain states differ systematically from those of the Indo-Gangetic plains, and how these differences manifest within the electoral process. We complement the analysis of Duverger's law with a high level social study using parameters from the National Family Health Survey (NFHS). We will explore why the parameters were chosen and what they show to us and then compare results for mountains and plains.

### **3.2 Duverger's Law**

In the previous chapter we studied the mechanical and psychological effect of Duverger's law. The distinction between mechanical effect and psychological effect might seem blurred at first, but it is important to note that there can be various reasons for voters responding to the mechanical effect. Mechanical factor can be measured using various magnitudes like the Laakso and Taagepera index (Laakso & Taagepera, 1979) or the Golosov index (Golosov, 2010), but it is often difficult to quantify the psychological effect. The psychological effect is not limited solely to strategic voting and there can be various reasons for the mechanical effect, which can often be difficult to measure. For example, information flow may influence this dominance and more than two parties may emerge in single member plurality systems even when all voters are strategic (Clough, 2007).

Strategic voting has often been used to explain the results of Duverger's law. It has been specifically useful in explaining the psychological reasons behind the rise of Duverger's law. A party can manage to garner a lot of support from its constituency and still lose by a minor margin. Votes for minor parties can potentially be regarded as splitting votes away from the major parties. To counteract this, voters often engage in "strategic voting" which occurs when voters make choices based on electoral expectations.

rather than sincere preferences (Bol & Verthe, 2019). This behavior can take various forms, such as deserting small parties for larger ones or vice versa, depending on the electoral system. More on this will be covered in the next chapter, keeping the Indian context in mind.

### 3.3 Revisiting the Indian Case

The Congress party system (Candland, 1997; Kothari, 1967) was a massive umbrella organization observed in the 1950s and 1960s as Congress originally founded to fight for reforms under British rule, the Congress evolved into a mass organization that led India to independence. It became a massive umbrella organization to accommodate different groups that in some cases conflicted with each other and hence became a system of checks and balances allowing them to maintain a centrist position in India. Since the 1970s, India's political landscape has seen the emergence of identity-based parties and increasing party fragmentation among congress as Congress started to lose its hegemony. The INC split in 1969, resulting in the Congress (O) and Congress (R). The latter, led by Indira Gandhi, adopted more populist policies including the nationalization of banks and the abolition of privy purses (Ramachandra Guha, 2011). These measures aimed to address economic disparities but also led to power being in hand of one person only. The traditional umbrella party structure found it challenging to maintain its dominance as deepening of these social divisions. Concurrently, identity-based political movements gained momentum (Farooqui & Sridharan, 2016). For example, the rise of the Dalit Panthers in Maharashtra during the early 1970s exemplified this trend who sought to combat caste based discrimination and were instrumental in bringing Dalit issues to the forefront of regional politics. The 1970s also concluded the formation of North Eastern states in India. States such as Meghalaya, Manipur, and Tripura were granted statehood in 1972, followed by Arunachal Pradesh and Mizoram in 1987. Nevertheless, these states participated in the Lok Sabha elections post 1975.

Following on these studies, this study will use both Lok Sabha and assembly level constituencies to perform this analysis. It will give us a true essence of Duverger's law and more will be elaborated in the following sections.

### 3.4 Dataset

The Indo-Gangetic plains serve as a relevant comparative basis for analysis as many mountain states were carved out of the plains regions through various reorganization processes. A notable example is Himachal Pradesh which underwent reorganization in 1966 following the recommendations of the State Reorganization Commission. The contemporary political geography of the Northeast was finalized in 1975 with Sikkim's incorporation into India. The data for the analysis is compiled from the Election commission of India and the timeframe is set from 1977 to 2014. The year 1977 is chosen because almost all mountain states (except Uttarakhand) were formed by then.

The Indo-Gangetic Plains encompass several states and territories: Punjab, Haryana, Rajasthan, Delhi, Chandigarh, Uttar Pradesh, Bihar, West Bengal, and Assam (not a part of Indo Gangetic plains but part of Brahmaputra plains). For this study, Jharkhand's share of seats have also been counted as a part of Bihar. For Northern mountains we include the states of Arunachal Pradesh, Himachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, and Uttarakhand. This analysis deliberately excludes Jammu and Kashmir due to its complex geopolitical situation and the presence of international actors, which has created unique political dynamics that would confound the geographic comparison being studied. Also owing to its special status, lack of complete data and political debate around it due to the now scrapped Article 370 which was active during our period. Inspired by the Black Panther movement in the United States, the Dalit Panthers of study. Article 370 gave the state a separate constitution, state flag, and autonomy of internal administration which was unlike any other state and hence clubbing it with the rest of the mountain states would be unfavorable. We also identified the constituencies in the state of Uttarakhand before it separated from Uttar Pradesh in 2000 and incorporated them to analyze the behavior of Uttarakhand before the formation of the state and removed the same constituencies from Uttar Pradesh which are Almora, Garhwal, Hardwar, Nainital, Tehri Garhwal. For assembly elections the constituencies are: Uttar Kashi, Badri Kedar, Naini Tal, Laksar, Mussoorie, Khatima, Chakrata, Roorkee, Didihat, Bageshwar, Pithoragarh, Dehradun, Lansdowne, Devprayag, Haldwani, Ranikhet, Almora, Hardwar, Pauri, Karanprayag, Kashipur, Tehri.

Assembly level constituency data is also sourced from the Election Commission of India. The assembly election data is taken from 1972 to 2015. Unlike Lok Sabha elections, which take place simultaneously across all states, assembly elections follow separate cycles for each state. This makes it challenging to aggregate and analyze them in the same way. To address this, we group assembly elections within a five year window and align them to the nearest benchmark year—1975, 1980, 1985, 1990, 1995, 2000, 2005, and 2010. This allows us to identify overall trends more effectively. Hence the window for assembly elections might seem shorter but, it incorporates similar number of elections (in comparison to Lok Sabha).

The differences between mountainous and plain regions are rooted in structural distinctions that shape the society (J. C. Scott, 2009). To understand these variations we study social indicators related to the gender dynamics. For this analysis, we use data from the National Family Health Survey (NFHS) which is a nationwide survey that has had five major iterations—in 1992, 1998, 2005, 2015, and 2019. The NFHS consists of two primary datasets:

- The **household dataset** provides insights into household composition, living conditions of different families, access to water and other amenities for survival, property owned, and broad health indicators for all household members.
- The **individual dataset** offers more granular demographic, health, and lifestyle data. In the 1992 and 1998 iterations, this dataset focused exclusively on married women aged 15–49. From 2005

onward, the scope expanded to include women (15–49 years), men (15–54 years), and children under five.

In our analysis, we primarily examine the individual dataset of women to assess the extent of freedom across different regions. This evaluation is based on various parameters, which will be detailed further in the methodology section.

To analyze women's literacy at the state level, data from Office of the Registrar General and Census Commissioner, India, 1991, 2001, 2011 has been utilized, along with literacy data from the National Statistical Commission, India, 2017.

### 3.5 Duverger's law

To operationalize Duverger's law, we can count the total number of parties participating in the constituency. However, this can produce false results as we need to find the major parties and the votes received by each party should be given some weight in the analysis. Instead, we use Laakso and Taagepera Index (Laakso & Taagepera, 1979) to calculate the effective number of parties in a constituency. The formula is

$$N = P \frac{1}{\sum_{i=1}^n p_i^2}$$

where  $N$  is the total number of political parties,  $p_i$  is the proportion of votes obtained by party,  $p_i$  is calculated separately for each party within each constituency and weighs party by their relative strength, ensuring larger parties are given more weight than the smaller. In assessing the presence of a two-party system, the ideal value of ENP should be 2 which shows that there are two major parties in the constituency. Since the number can be non integer as well, this study employs an ENP threshold of 2.5 which has been used in various methodological frameworks established by Laakso and Taagepera, Diwakar, and Chhibber. Additionally, a softer threshold of 3.0 is considered as a soft cutoff for analysis which has also been used in the above frameworks. This analysis employs both ENP thresholds to evaluate district level party competition, with the state level ENP calculated as the mean of district level values, following Diwakar's methodological approach (Diwakar, 2007). For each state the mean is calculated for every year and plotted on a graph along with the best fit line for each state to indicate general trend. The best fit line, also known as a line of best fit or regression line, is a straight line that best represents the relationship between two variables in a scatter plot.

Let's assume a line is represented as  $y = mx + b$  where  $m$  is the slope of the line and the  $y$ -intercept (where the line crosses the  $y$ -axis). To find the best fit for each actual data point calculate the vertical distance (residual) between the point and the proposed line. These distances are squared (make all values positive and give more weight to larger errors).

$$m = \frac{\sum_{i=1}^n ((x_i - \bar{x})(y_i - \bar{y}))}{\sum_{i=1}^n ((x_i - \bar{x})^2)} \quad (3.1)$$

$$b = \bar{y} - m\bar{x} \quad (3.2)$$

Where  $\bar{y}$  represents the mean of all y-values and  $\bar{x}$  represents a point. It is used to observe a general trend of the ENP values, i.e., whether mean ENP values of a state are diverging or converging towards two over time.

## 3.6 NFHS Dataset

### 3.6.1 Description of Parameters

The NFHS dataset has been done in 5 iterations from 1992 to 2019. To study NFHS, we use women's empowerment as a process through which individuals gain greater control over their lives, encompassing both access to resources and the ability to make autonomous decisions. Following this framework, to operationalize empowerment we use three key indicators: contraceptive use, literacy levels, and breastfeeding practices.

1. Child Marriage: Child marriage is the formal marriage or informal union before the age of 18. Early marriage can mean a girl's transition from being a child/adolescent to an adult which often happens before the legal age of marriage in India. According to van Geffen, 2023, the mean age of first marriage for women has increased from 16.8 in 1992 to 18.9 in 2022. The mean age of marriage for women became over 18 for the first time in 2012. Early marriage forces women to take over adult responsibilities early and even reproduce. This often burdens them with responsibilities for which they are largely unprepared and can often limit their ambitions. Child marriage often takes away the autonomy for women to make their own decisions. When girls marry later they tend to have better health, partake more in decision-making and have better economic prospects. NFHS data shows that more than 50% women got married before the age of 18 during the 1990s. It is important to study this as it is used as a parameter to study the girl's ability to make independent decisions regarding her personal life and can be used as a proxy indicator for women's agency to dictate their life.
2. Contraceptive Use as an Indicator of Decision-Making Autonomy: The Indian government itself has presented the principle of "the rights of couples and individuals to decide freely and responsibly the number and spacing of their children and to have the information and means to do so" (Pachauri, 2014). A lack of contraceptive use can suggest that women are not able to exercise this principle due to opposition from laws, lack of availability or the social pressure to be fertile. Previous research suggests that high contraceptive prevalence correlates with greater female agency, as access to contraception allows women to control fertility outcomes independently (Kishor & Gupta, 2004). Studies have also shown that there is an increase demand for contraception to delay first pregnancy among young married women, but there is a limited

amount who are able to do so (Jejeebhoy et al., 2014). This can be due to social/cultural reasons as women might be pressured to not use contraception or forced to conceive. Hence, this metric often tells us about the women's agency in family planning and a rising trend can suggest an increase in women's autonomy too. In the NFHS questionnaire, the parameter referenced was the "Percent distribution of currently married women by contraceptive method currently used".

3. Literacy as a Source of Empowerment: Under Article 21-A of Indian Constitution primary education is a fundamental for children from age 6 to 14. According to the Census of 1991, the definition of literacy is "The total percentage of the population of an area at a particular time aged seven years or above who can read and write with understanding." Literacy is calculated by asking every citizen age 6 and above 'Can (NAME) read and write?' While literacy is effected due to economic status and access, it is not the only reason. A large number women are denied education due to cultural reasons too. This is especially evident in higher levels of education. Higher literacy also shows women can be more independent and can exercise their autonomy easily. Higher literacy also means more financial independence and better jobs. Studies have shown that higher literacy is also correlated with lower fertility rate and better family planning (Kumar et al., 2022). Lower literacy often leads to women being dependent on others, generally the husband/father leading to higher of chances of exploitation. Hence, it can be argued that literacy rates serve as a proxy for empowerment and access to information.
4. Breastfeeding Practices as an Indicator of Maternal Agency: Breastfeeding might not feel like a conventional indicator initially. However, the ability of a mother to breastfeed is tied to her autonomy, knowledge and the support she receives. In many Indian households feeding children like giving them food, water, solid food etc is influenced by elders and cultural norms. A woman who is empowered and who has a say in childcare decisions can insist on breastfeeding despite traditional pressures for early supplementation. Studies have also shown how maternal autonomy, financial independence positively impacts breastfeeding practices (Shroff et al., 2011). Breastfeeding even after the initial 6 months also indicates the support women are getting from their families and the proper nutrients to do so. Analyzing breastfeeding patterns provides insights into the degree of autonomy exercised by women and the amount of support they are getting in maternal and child health decisions (Delawadi and Sal, 2024).

### 3.6.2 Ranking Methodology

The methodology for ranking states based on women's empowerment involves taking the four distinct indicators and ranking them. These indicators serve as proxies for measuring empowerment levels across states in India as explained above. Ranks are first assigned for each individual indicator, and the final composite rank is calculated by averaging these ranks. The ranking methodology is relatively straightforward, as it assumes that all indicators carry equal weight and does not adjust for differences in magnitude between ranks. This means that while the rankings provide a

comparative snapshot of empowerment levels, they do not quantify the extent of variation between states. Nonetheless, this method effectively highlights relative disparities in women's empowerment across states. A lower numerical rank signifies higher empowerment, making it easier to identify which states exhibit stronger indicators of women's agency and autonomy.

Although there are various questions in NFHS 1998 and onwards, there is a limited amount of questions in 1992. The questions of 1992 give us an insight in the late 80s era too and due to this limited questions are chosen to analyze the data.

## 3.7 Lok Sabha

### 3.7.1 Preliminary analysis

From 1977 to 2019, there are a total of 239 mountain constituencies and 2911 plain constituencies suggesting an imbalanced dataset. To check for distribution (whether it is normal or not and its standard deviation) a preliminary analysis is performed. The figure helps visualize the data by organizing values into small intervals (bins of intervals 0.1) and showing their density by plotting histograms. Density is used to normalize the data, making it easier to compare shapes of distributions by making the total area of all rectangles equal to one.

Statistic	Mountains	Plains
Mean	2.54	2.88
Median	2.31	2.71
Std. Dev.	0.82	0.83

**Table 3.1**Lok Sabha: Basic Statistics

To test for significant differences between the values of mountains and plains, we divide the constituencies into two buckets. One bucket contains the constituencies of plains and the other half the mountains. Since the number of constituencies is almost in the ratio 1:12, we have imbalanced data. To account for imbalanced data Mann-Whitney U test also known as Wilcoxon rank sum test is suitable for analysis as it is non-parametric and remains robust even with unequal sample sizes. The Mann-Whitney U test does not assume a normal distribution which makes it useful with ordinal data. The test works by ranking all data points from both groups together and then calculating a U statistic based on the sum of ranks for each group. This test is less powerful than the parametric test but for our given situation this is the best possible option. We set the significance level and the results are in Table 3.2. Cohen's d is used to measure the effect size, quantifying the magnitude of the difference between two means. Both these tests particularly valuable for imbalanced datasets as they are independent of sample size. In Figure 3.2 it is interesting to note that the density around the value two is much higher than in the case of mountains. Moreover, the plains have a much longer tail than the mountains indicating a more flattened distribution and a distribution with more districts (percentage wise) which have effective parties greater than three.

Statistic	Value
P-value	$4.84 \times 10^{-2}$
Cohen's d	-6.03

**Table 3.2**Lok Sabha: Mann-Whitney U Test and Effect Size

The results show a significantly low p-value and the Cohen's d value is negative with a very high absolute value, indicating the bucket of plains is significantly greater than mountains overall with the difference being six standard deviations. A preliminary analysis also reveals that the overall mean for mountains is lower than that for plains, suggesting a difference while following a normal distribution. However, to validate Duverger's law it is essential to examine whether the values decrease over time as clubbing all the elections together hides changes in the party system over time. To investigate this, a year-wise frequency distribution is calculated using a threshold for effective parties of 2.5 and a softed threshold of 3.

**Table 3.3**Lok Sabha: Disaggregated Comparison of Mountains and Plains Across Years

Year	Mountain N	Plain N	Mountain Mean	Plain Mean	Mountain Median	Plain Median	F-statistic	P-value	Significance
1977	20	285	2.2526	2.0031	2.0757	1.9669	3595	0.0508	NO
1980	19	273	2.9520	2.9682	2.8537	2.9634	2081	0.1502	NO
1984	20	285	2.3431	2.5985	2.1538	2.3825	1923	0.0151	YES
1989	20	271	2.5776	2.6777	2.7023	2.4310	2541	0.6427	NO
1991	20	282	2.4914	3.1910	2.4151	2.9028	1683	0.0026	YES
1996	20	285	2.8967	3.1964	2.5803	3.0359	2121	0.0560	NO
1998	20	285	2.6885	2.8536	2.4954	2.8628	2361	0.2001	NO
1999	20	285	2.6258	2.8157	2.2276	2.5939	2137	0.0616	NO
2004	20	274	2.4795	3.0440	2.2554	2.8936	1460	0.0005	YES
2009	20	274	2.5081	3.2879	2.4385	3.0458	1378	0.0002	YES
2014	20	274	2.4468	3.1274	2.2735	3.1311	1028	0.0000	YES

**Table 3.4**Lok Sabha: Year-wise Comparison Between Mountain and Plain Constituencies without Manipur

Year	Mountain N	Plain N	Mountain Mean	Plain Mean	Mountain Median	Plain Median	F-statistic	P-value	Significant
1977	18	285	2.1320	2.0031	2.0232	1.9669	3028.0	0.1995	NO
1980	17	273	2.5959	2.9682	2.4328	2.9634	1545.0	0.0209	YES
1984	18	285	2.1211	2.5985	2.1085	2.3825	1445.0	0.0019	YES
1989	18	271	2.5254	2.6777	2.5513	2.4310	2148.0	0.3975	NO
1991	18	282	2.4309	3.1910	2.3507	2.9028	1397.0	0.0014	YES
1996	18	285	2.7524	3.1964	2.5033	3.0359	1733.0	0.0211	YES
1998	18	285	2.5259	2.8536	2.4628	2.8628	1794.0	0.0326	YES
1999	18	285	2.4108	2.8157	2.1920	2.5939	1659.0	0.0120	YES
2004	18	274	2.3224	3.0440	2.1991	2.8936	1007.0	$2.63 \times 10^{-5}$	YES
2009	18	274	2.4344	3.2879	2.2587	3.0458	1087.0	$7.12 \times 10^{-5}$	YES
2014	18	274	2.3633	3.1274	2.2676	3.1311	732.0	$5.87 \times 10^{-7}$	YES

We conduct Mann Whitney U test in **Table 3.4** to analyze the effective number of parties between mountain and plain constituencies in each election year. The statistical significance between the regions remained non existent in initial years but showed an increasing pattern until the time span where significant p-values indicated deepening variation between areas. The period with consecutively insignificant results spans a narrow time frame (1996 to 1999) suggesting a temporary convergence or electoral anomaly. Most data points from the full time span show distinct statistical differences.



and 1996. For plains, apart from the year of 1977 all years are close to or above 50%. In 1996, 2009 and 2014, there was a gross violation of Duverger's law in plains as more than 50% of districts had more than 3 effective parties. Hence, it can be argued that there is a possibility that Duverger's law is followed in the mountains. This analysis also shows that the difference between plains and mountains is increasing with time. To test for this and also verify whether the number of effective parties converge to two over time for mountains a regression analysis is performed.

Region	State	Slope*100	Mean
Mountains	Manipur	-2.615	3.85
	Mizoram	0.470	2.32
	Himachal Pradesh	-0.713	2.17
	Meghalaya	1.237	2.42
	Nagaland	-0.474	1.85
	Tripura	-0.448	2.32
	Arunachal Pradesh	0.553	2.47
	Sikkim	1.654	1.86
	Uttarakhand	-0.558	2.78
Plains	Haryana	1.101	2.89
	Punjab	1.048	2.67
	Uttar Pradesh	0.668	3.26
	Rajasthan	-0.481	2.42
	Bihar	1.47	2.89
	West Bengal	1.546	2.47
	Assam	0.017	3.08
	NCT of Delhi	0.959	2.32

**Table 3.7**Lok Sabha: State-wise Slope and Mean Data categorized into Mountains, Plains, and Others.

We find the mean of all effective parties of all districts for each state over the election years and plot them over a graph (Figure ?? and ??). Then we find the best fit line (regression analysis) and check the slope of each state over the years.

The slopes in Table ?? are multiplied by a factor of 100 because the change in effective parties is very gradual. In Table ?? of the plains and mountain states, it is evident that the slope of the best-fit lines is positive for all plain states except Rajasthan. Similarly, it is negative or close to 0 for all mountainous states except Meghalaya. Moreover, the y-intercepts for the plains states tend to be higher than those of the mountain states, suggesting a generally higher starting point for the effective number of parties in the plains. In contrast, the mountain states exhibit lower slopes and, in some cases, negative or near-zero slopes (e.g., Nagaland and Mizoram) implying stability or even a slight decline in the effective number of parties over time. An interesting trend is observed in Manipur where the original intercept is very high (only state with absolute slope greater than 2) and shows a significant decrease in the effective number of parties over time which could be indicative of stronger convergence to Duverger's law. Meghalaya is the only state with a significant positive slope and shows divergence. Rest of the states either have

negative slope or a positive slope close to indicating stability with mean less than 3 in every state except Manipur. Sikkim has a significant positive slope but, it is slowly converging towards 2 as it begins from a very low number of effective parties.

The graphs (Figure ?? and ??) also show that the majority of the mountain states showed high values just after their formation and after that there is a steep dip. This is best illustrated in the case of Uttarakhand where the effective parties are very high until the formation of the state and fall drastically after the state is formed, a trend which continues in 2019 too. Uttarakhand Kranti Dal (UKD) a state party which was a strong force in the formation of Uttarakhand was completely eliminated from the assembly and Lok Sabha elections after the formation of the state.

The plains follow the complete opposite trend as after the formation of India in 1947, Congress was the only major party due to it being an umbrella organization and the splitting of Congress into smaller fractions paved the way for newer parties based on identity to develop (Kothari, 1967). Apart from Rajasthan, the rest of them have an increasing slope showing divergence from the Duverger's law over time. Assam has a small slope but the mean and intercept of effective parties is consistently greater than three, grossly violating the Duverger's law. All plain states show a consistent trend till 2014 and dips in 1999. To analyze the complete trend we plot the overall averages of mountains and plains in Figure ?? and plot the best fit line across them too (regression analysis). The trend shows a constant small decreasing slope.

In 2019 due to the rise of BJP there is a new party system, similar to Congress in 1950s-60s. BJP's dominance has transformed not only the party system but also the political system itself, pushing toward a Hindu majoritarian state and undermining India's traditional secularism (Jaffrelot & Verniers, 2020). Politics has become intertwined with aggressive nationalism and promoting a vision of India as an ancient Hindu nation has led to the rise of a Hindu identity. The results however, show that there is a difference in the behavior of party systems in the mountain and plain states which is shown through the electoral systems of India. In the next section, we perform a qualitative review of the existing reasons of Duverger's law and explain how geography lead to structural differences between mountains and plains which effects politics too.

## 3.8 Assembly Elections

### 3.8.1 Preliminary Analysis

Statistic	Mountains	Plains
N (Sample Size)	3995	16296
Mean	2.883	3.199
Median	2.669	2.940

Table 3.8 Assembly Elections: Basic Statistics

For assembly elections we do a similar analysis and calculate the same statistics. The histogram ?? shows a higher number of density around the ENP value 2 for mountains than plains. This means that mountains on an overall level have a higher number of constituencies with ENP values 2. Apart from this we also observe the overall average for mountains is lesser than mountains. This points to our hypothesis that there is some difference between the mountain and states. However, to test our hypothesis we need to check for convergence or divergence over time in both the plains and mountains.

Election Year	2.0	2 to 2.5	2.5 to 3	3
1975	17.82%	17.53%	29.31%	35.34%
1980	13.22%	17.07%	20.43%	49.28%
1985	19.04%	26.26%	21.44%	33.26%
1990	29.60%	25.37%	18.82%	26.22%
1995	21.41%	27.23%	24.95%	26.40%
2000	11.85%	28.11%	16.63%	43.40%
2005	16.84%	28.77%	18.07%	36.32%
2010	16.78%	33.70%	18.98%	30.54%

**Table 3.9**Assembly Elections: Percentage Distribution of ENP in the Mountains

Election Year	2.0	2 to 2.5	2.5 to 3	3
1975	10.56%	29.77%	20.56%	39.11%
1980	8.53%	30.70%	17.98%	42.78%
1985	12.46%	37.08%	16.63%	33.83%
1990	3.16%	22.07%	18.91%	55.85%
1995	1.73%	26.55%	19.48%	52.25%
2000	4.51%	30.99%	16.11%	48.39%
2005	1.41%	25.94%	16.92%	55.72%
2010	1.36%	27.29%	18.04%	53.31%

**Table 3.10**Assembly Elections: Percentage Distribution of ENP in the Plains

Year	N (Mtn)	N (Plain)	Mean (Mtn)	Mean (Plain)	Median (Mtn)	Median (Plain)	Significant?
1975	348	2130	2.915	2.983	2.770	2.722	No
1980	416	1863	3.308	3.070	2.983	2.789	Yes
1985	457	1966	2.871	2.841	2.695	2.513	No
1990	473	2247	2.612	3.449	2.363	3.162	Yes
1995	481	2249	2.703	3.234	2.534	3.050	Yes
2000	523	1862	3.157	3.195	2.819	2.956	Yes
2005	570	1773	2.854	3.418	2.624	3.175	Yes
2010	727	2206	2.751	3.373	2.491	3.122	Yes

**Table 3.11**Assembly Elections: Disaggregated ENP values

### 3.8.2 Duverger's law through the years

In table?? and?? we find that in the initial years the ENP value for mountains is higher than plains but with time the values are slowly converging towards the two party equilibrium for mountains and vice versa for plains. The plains consistently exhibit a higher concentration of districts with ENP values exceeding~~3~~, exceeding the hard threshold from 1990 and onwards. The Mountains present a more balanced distribution as the percentage~~said~~ 2 2.5 range is higher. The Plains register lower percentages in the~~2~~ and 2 2.5 categories. In table 3.11 we find that in the initial years there is no statistically significant difference between mountains and plains. However, with time we observe an increase in the same and there is a statistically significant difference. Moreover, we observe that the mean of mountains is consistently less than that of the plains. The trends suggest that there is convergence happening in mountains whereas the ENP values are diverging strongly in the plains. This calls for a more detailed further analysis.

We plot ENP values for all states for both ~~plain~~ and mountains~~??~~. We observe that the ENP value is high in compared to the Lok Sabha elections but the trends are similar. Uttarakhand, Meghalaya show positive slopes but apart from them all of are ~~strongly~~ decreasing trends. Similar to Lok Sabha elections, the ENP converges strongly after the formation of the state. This can be attributed due to the competition between many parties like UKD (Uttarakhand Akali Dal) which started the entire movement. Similar to Fey, 2007 model, we observe that the ideologies of all the parties converged in the state. Similar to UKD, Congress and BJP also started to advocate for a separate state of Uttarkhand. This led to the fast convergence of the districts to ENP value below 3. Although converging, the values of ENP are higher than the Lok Sabha elections. The average value for ENP is above or close to 2.5 in a lot of states slightly violating the soft cutoff. Variability is high in states like Sikkim and Nagaland, showing frequent shifts in ENP, possibly due to regional or insurgency related factors.

In plain states also we observe a similar trend to Lok Sabha elections. Apart from West Bengal all states show a strong diverging trend. Almost all of them have an~~avg~~ greatly violating the Duverger's law with Haryana, Bihar and Uttar Pradesh (representing the Hindi heartlands) having the highest slopes and averages. Assam also shows fluctuations but maintains a relatively stable ENP reflecting periodic shifts without consistent fragmentation. The y intercept (beginning point) is also high for Plains than the mountains. However, the y-intercept is also higher in Assembly elections for all the states.

To analyze them together, we plot all the mountains and plain districts~~?and observe~~ their trends. It is important to note that the best fit lines for both start from a similar y-intercept indicating a similar start. The Mountain States display a pattern with significant fluctuations with peaks around 1985 and 2000. Despite these temporary spikes, the overall trend line for the mountain states indicates a declining trajectory over time. This downward trend points towards a consolidation of parties and reduced party fragmentation. However, in the plain states we observe a gradual departure from single party dominance towards more competitive multiparty systems. The best fit lines for both mountain and plain states start from a similar value but converge and diverge quickly respectively. The

higher ENP values in assembly elections can be attributed to the presence of regional parties and rise of new identities in the plains. First presented by (Lijphart, 1994), a lot of scholars have argued the presence of regional parties in assembly elections to increase the competition. These regional parties were based on different identities like caste, religion in different states. A proper explanation for this will be looked in the next section.

### 3.9 NFHS Analysis

In the following section we will analyze the parameters described in the methodology section and present the results and correlations observed.

#### 3.9.1 Child Marriage

State	1992	1998	2005	2015	2019	RankFinal
Himachal Pradesh	23.2	9.2	12.3	8.5	5.4	1
Mizoram	12.6	10.8	20.5	10.2	8.4	2
Punjab	13.9	11.8	19.3	7.2	8.6	2
Manipur	14.4	9.9	12.7	13	16.4	4
Nagaland	14.9	20.7	21	13.1	5.7	5
Delhi	26.2	17.9	21.2	14	10.1	6
Uttarakhand	30.7	23.2	22.5	13.9	9.6	7
Sikkim		20.5	30.1	14.4	10.6	8
Meghalaya	26.6	24.8	24.4	16.4	19.1	9
Haryana	51.1	36.8	39.8	18.4	12	10
Arunachal Pradesh	43.4	26.6	40.6	27.2	18.8	11
Assam	43.5	36.3	37.9	32.3	31.9	12
Uttar Pradesh	54.5	57.4	53.1	18.6	14.8	13
Tripura	40.6	35.6	40.9	32.3	40.2	14
Rajasthan	61.2	59.9	57.1	29.8	21.3	15
Jharkhand	57.6	56.3	61.1	37	31.5	15
West Bengal	54.8	45.3	53.3	40.8	41.4	17
Bihar	60	58.4	60.2	39	38.7	18

**Table 3.12**NFHS Analysis: State Data with Final Rank for child marriages

The data in Table 3.12 suggests a clear trend of improvement across all states from 1992 to 2019 as the child marriage rates are decreasing, indicating progress in almost all the states. Himachal Pradesh, Mizoram, Manipur, Nagaland, Uttarakhand, and Sikkim all rank within the top ten. Arunachal Pradesh and Tripura are the only two mountain states present in the bottom eight. Himachal Pradesh has secured the first position due to a steady and substantial decline in values over the years. Mizoram follows closely, showing consistently low values and strong improvement. In contrast, plain states display mixed performance. While Punjab and Delhi rank relatively high, states like Bihar, Rajasthan, and

Jharkhand remain at the bottom despite showing progress. Overall, mountainous states tend to perform better overall as they dominate the top ranks.

### 3.9.2 Literacy

In Table?? we can see that from 1991 to 2016, every state experienced a notable rise in literacy. The table?? is ranked by the female literacy. Mizoram showed consistently high literacy at 82.26% in 1991 and reaching 89.4% in 2016, closely followed by Delhi, which showed a steep climb from about 62% to nearly 94%. Many mountainous or northeastern states appear near the top: Nagaland and Tripura share third place with values around 80%, Himachal Pradesh and Uttarakhand show robust improvements (both surpassing 80% by 2016), and Sikkim moves from 46.76% to 76.43%. Plain states have shown consistently low literacy as visible that all the bottom four states are plain states and no state apart from Punjab came in the top five. Nagaland interestingly presents a nearly negligible gap (with an average difference of -0.49), implying that the female literacy rates are almost on par with the male rates. The calculated differences (Avg. Male - Avg. Female) are predominantly positive, confirming that male literacy rates tend to be higher than female rates in most regions. This, along with the fact that differential between average female and male literacy is very high in plain states. Haryana, Uttar Pradesh, Jharkhand, Rajasthan and Bihar have a differential of 20%. Uttarakhand and Manipur are the ones on the highest side of differential in case of Mountains. Seven of the top ten states are mountain states with only Arunachal Pradesh in the bottom eight. There has been a greater percentage increase in the proportion of females gaining literacy in all states due to the consolidated efforts of the government. Overall, mountain states performed better than plain states in this parameter.

### 3.9.3 Breastfeeding Practices

The table?? illustrates the performance of various states in terms of how much breast milk and solid/mushy food is fed to children by women. Most states display upward trends, indicating more maternal agency. Sikkim shows strong progress by 1998 as it ranks first. In contrast, states like Rajasthan and Uttar Pradesh, with modest or fluctuating values, fall toward the lower end of the ranking. Apart from Uttarakhand, all mountain states are present in top 10. Only West Bengal comes on rank 4 among all the mountain states. Overall, the mountain states clearly outperform the plain states in this case. Studies have shown that higher maternal self-efficacy and positive ideational factors (such as accurate knowledge about the benefits of breastfeeding and confidence in one's ability to nurse) are closely associated with improved breastfeeding practices. This indirectly measures the agency of a mother in her decision on health and care (Anaba et al., 2022)

### 3.9.4 Contraceptive Data

Table ?? shows a constant increase in contraceptive usage in most states. The slight drop from NFHS-3 to NFHS-4 is questioned in the existing literature. Some researchers suggested it could be

State	Female Literacy (%)					Male Literacy (%)					Diff.	
	1991	2001	2011	2017	Avg.	1991	2001	2011	2017	Avg.	(M-F)	
Mizoram	82.26	86.75	89.27	89.40	86.92	93.35	95.00	93.35	93.72	93.86	6.94	
Delhi	61.99	74.71	80.76	93.70	77.79	82.01	87.33	90.94	82.40	85.70	7.91	
Nagaland	61.92	76.11	76.11	80.11	73.56	61.65	66.59	82.75	83.29	73.07	-0.49	
Tripura	49.56	73.19	82.73	83.15	72.16	81.47	91.53	92.53	92.18	89.43	17.27	
Himachal Pradesh	52.13	67.42	75.93	80.50	69.00	75.36	85.35	89.53	92.90	85.79	16.79	
Punjab	50.41	63.55	70.73	78.50	65.80	65.66	75.23	80.44	88.50	77.46	11.66	
Uttarakhand	52.28	60.26	70.01	80.70	65.81	86.60	92.00	87.40	94.30	90.08	24.27	
Sikkim	46.76	60.40	75.61	76.43	64.80	76.73	86.55	86.55	87.29	84.28	19.48	
West Bengal	48.64	60.22	70.54	76.10	63.88	73.00	77.58	81.69	84.80	79.77	15.89	
Manipur	47.60	60.53	70.26	73.17	62.39	86.49	90.00	83.58	86.49	86.14	23.75	
Meghalaya	44.85	59.61	72.89	73.78	62.78	60.65	65.43	75.95	77.17	69.80	7.02	
Assam	43.03	56.03	66.27	81.20	61.63	61.87	71.28	77.85	90.10	75.28	13.65	
Haryana	40.48	56.31	65.94	71.30	58.51	69.10	84.06	84.06	88.00	81.31	22.80	
Arunachal Pradesh	29.69	44.24	57.70	59.50	47.28	51.50	64.07	72.55	73.40	65.38	18.10	
Uttar Pradesh	25.31	42.22	57.18	63.40	47.03	55.73	68.82	77.28	81.80	70.41	23.38	
Jharkhand	25.50	39.38	55.42	64.70	46.75	67.94	78.45	76.84	83.00	76.56	29.81	
Rajasthan	20.44	43.85	52.12	57.60	43.00	54.99	75.70	79.19	80.80	72.17	29.17	
Bihar	22.89	33.12	51.50	60.50	42.00	59.68	60.32	71.20	79.70	67.73	25.73	

**Table 3.13**NFHS Analysis: Male and Female Literacy Rates in Indian States (1991-2017) with Difference

State	1992	1998	2005	2015	2019	Final Rank
Sikkim	-	87.3	70.1	49.9	54.7	1
Manipur	50	86.8	55.3	36.9	39.0	2
Meghalaya	56.3	77.1	35.3	45.4	51.0	2
West Bengal	53.6	46.3	58.7	36.6	50.7	4
Mizoram	64.3	74.2	35.0	41.2	33.7	5
Himachal Pradesh	39.9	61.3	69.2	24.5	31.1	6
Tripura	65.0	-	56.8	15.1	25.6	7
Arunachal Pradesh	35.8	60.2	33.8	33.3	40.0	8
Nagaland	43.5	81.3	27.7	33.2	21.8	9
Delhi	25.1	37.0	51.5	24.1	30.8	10
Assam	39.2	58.5	32.7	27.8	23.4	11
Punjab	37.3	38.7	39.9	15.6	26.7	12
Uttarakhand	-	-	47.9	19.8	20.6	13
Haryana	38.5	41.8	31.3	16.4	21.7	14
Bihar	18.1	15.0	34.9	16.8	19.6	15
Uttar Pradesh	19.4	17.3	36.1	9.8	15.2	16
Jharkhand	-	-	28.5	13.8	21.2	17
Rajasthan	9.4	17.5	20.8	8.5	16.3	18

**Table 3.14**NFHS Analysis: States with Final Rank for Breastfeeding practices

**Table 3.15**NFHS Analysis: Contraceptive Data for Plain and Mountain States

State	1992	1998	2005	2015	2019	Rank
West Bengal	57.4	66.6	71.2	70.9	74.4	1
Himachal Pradesh	58.4	67.7	72.6	56.8	74.2	2
Delhi	60.3	63.8	66.9	54.8	76.4	3
Punjab	58.7	66.7	63.3	75.8	66.6	4
Tripura	56.1		65.7	64.1	71.2	5
Haryana	49.7	62.4	63.4	63.7	73.1	6
Uttarakhand			59.3	53.4	70.8	7
Rajasthan	31.8	40.3	47.2	59.7	72.3	8
Sikkim		53.8	57.6	46.7	69.1	9
Assam	42.8	43.3	56.5	52.4	60.8	10
Mizoram	53.8	57.7	59.9	35.3	31.2	11
Manipur	34.9	38.7	48.7	23.6	61.3	12
Uttar Pradesh	19.8	28.1	43.6	45.5	62.4	13
Jharkhand			35.7	40.3	61.7	14
Arunachal Pradesh	23.6	35.4	43.2	31.6	59.1	15
Nagaland	13	30.3	29.7	26.5	57.4	16
Bihar	23.1	24.5	34.1	24	55.8	17
Meghalaya	20.7	20.2	24.3	24.3	27.4	18

due to better survey rigor (reducing over-reporting), while others pointed to persistent unmet need among women's limited say in contraceptive decisions (Kumar et al., 2022). The data for some states is missing due to different reasons but, it is important to note that most mountain societies underperform in this parameter. Mizoram and Manipur, especially showed a great drop from NFHS-3 (2005) to NFHS-4 (2015) which effected there rankings greatly. Most plains, however show high rates of contraceptive usage consistently without varied fluctuations even across NFHS-3 to NFHS-4. Plain states like West Bengal, Himachal, Delhi and Haryana have shown better results than the mountain states. A major reason for this in existing literature is the accessibility to the modern contraceptive methods in the remote mountain regions leading to a lesser usage.

### 3.9.5 Consolidated Ranks

The table? is made from the final rankings of the parameters described above and methodology used from section? For recap, each parameter is given the same weight in the ranking. A lower rank here indicates better performance. We can observe that the mountain states clearly outperform the plain states. In the bottom seven ranks, only one state is a mountain state. Apart from Punjab and Delhi, no plain state is a part of the top seven. This clearly shows that mountain states have better agency freedom for women with lesser exploitation. The difference between plain and mountain states is noticed in various studies (Kishor & Gupta, 2004) but, the reasons are varied. Better infrastructure, cultural reasons, more acceptance for women are cited to be the leading reasons. and due to remoteness mountai

regions often have modest infrastructure compared to their plain counterparts. However, limited studies have looked at the political and social indicators together. The results here suggest that there might be **a structural difference** between the plains and mountains. These differences are seen in various qualitative studies which will be explored in the next chapter.

State	Final Rank
Himachal Pradesh	1
Mizoram	2
Delhi	3
Punjab	4
Sikkim	5
Manipur	6
Tripura	7
West Bengal	8
Nagaland	9
Uttarakhand	10
Meghalaya	11
Haryana	12
Assam	13
Arunachal Pradesh	14
Uttar Pradesh	15
Rajasthan	16
Jharkhand	17
Bihar	18

**Table 3.16** NFHS Analysis: Consolidated Final State Rankings Based on NFHS Indicators

### 3.10 Conclusion

The analysis in the chapter reveals how mountain and plain states behave differently. The Indo Gangetic plains exhibit a consistent divergence from the two party system in both lok and assembly level elections. The mountain states on the other hand converge strongly in both, however the value is higher than the softer threshold in assembly elections. Regardless, the converging nature suggests that there is a strong difference between the geographies politically. To examine the social indicators we analyze various aspects of women's lives across both mountain and plain states. Mountain states generally rank higher in indicators related to women's empowerment, including literacy, breastfeeding practices, and reduced rates of child marriage. These indicators indicate higher maternal agency, better decision-making for women, better health etc. In the next chapter we will evaluate the reasons for the differences due to geography.

## *Chapter 4*

# **Understanding India's Mountain and Plain Dichotomy**

## **4.1 Introduction**

This chapter investigates why Duverger's Law and gender dynamics, fail to manifest uniformly across India, particularly in the mountainous states. While strategic voting is a common explanation for Duvergerian outcomes elsewhere, evidence for its widespread effect in India is contested and inconclusive. Instead, this chapter explores alternative factors rooted in India's complex social fabric. It focuses on the influence of geography, specifically the historical and ongoing distinctions between mountain and plain societies. We find examples of these structural differences across India and argue that differing identity formations, unique socio-political structures, and distinct gender dynamics along with the idea of Zomia in highland regions, offers a more compelling explanation for varying electoral patterns and social differences.

## **4.2 Can Strategic Voting explain the difference?**

Strategic voting is often used to explain Duverger's law as voters do not vote for their most preferred candidate or party but rather for a less-preferred option if they have a better chance of winning. India's case is different as there is a mixed evidence of strategic voting.

In the initial studies, Chhibber uses SF ratio to show that strategic voting happens in masses in India. SF ratio is the ratio of votes obtained by the second loser to the first loser. Chhibber argues that if SF ratio is near 0 then there is strategic voting happening at significant levels and vice versa. However, SF ratio is always not a reliable metric as Diwakar mentions

"SF ratio close to 1 (signifying a non-Duvergerian equilibrium) is possible in two situations: first, where the winning party secures a large majority of votes, leaving a very small proportion of votes for the other parties, and, second, where many parties share the votes in a closely fought election."

Hence, SF ratio is not a reliable metric. While some studies show that Indian voters tend to be more strategic than expressive when their preferred party is unlikely to win (Choi, 2009), a recent stu

showed modest evidence for elite collusion explaining the voting patterns in India and also showed that strategic voting is practically absent in India (Ziegfeld, 2021). A case study on Uttar Pradesh (Heath & Ziegfeld, 2022) using survey data showed that there was no evidence for strategic voting and the majority of the people expected their party to win. The study was limited in scope due to its small sample set and evidence from one state only and Uttar Pradesh, which doesn't necessarily follow Duverger's law but, it showed how the metrics used to evaluate strategic voting were weak, and it was first of its kind to use survey data.

Hence, it can be argued that strategic voting cannot be the case necessarily in these states. India unlike other countries is very diverse with a very complex social fabric with various identities like caste, gender, tribal groups, religion, geography coming into play and has different reasons for divergence from Duverger's law apart from strategic voting. The case of a single identity being the reason behind explaining Duverger's law is not a new idea (Mayer, 2013) for India. Mayer analyzed parameters like dummy candidates, spoiler candidates, regional parties and found the ratio of SC/ST i.e. caste and identity being a moderate reason behind the metric of effective parties.

### 4.3 Role of Identity politics in Mountains

The formation of identities is a continuous process often done as a response to external stimuli. The rise of different type of identities in the mountains and plains can also explain the difference in their electoral and social behaviors. For example, Uttarakhand and Himachal saw a rise of a distinct "Pahari" identity (S. Mishra, 2000) which was different from the rise of caste politics i.e. caste based identities in the plains. This is despite the fact that caste based cleavages exist in mountains too. For example, almost 50% of Himachal Pradesh consists of Rajput and Brahman's combined. The formation of Uttarakhand was triggered by opposition for job reservations for OBCs from the plains being applied to hill districts in the 1990s (S. Mishra, 2000). Uttarakhand had less than 2% of people as OBCs and were worried that the application of 27% reservation in hills would lead to plain people taking their jobs. Hence, caste politics acted as a catalyst to trigger the formation of Uttarakhand. However after Uttarakhand's formation, it was noted that statehood actually accentuated the Pahar Maidan divide within Uttarakhand itself (Mathur, 2015) and Uttarakhand was created in response to the longstanding lack of political representation for the hilly regions within mainstream state politics. The formation of different identities in North East might seem similar to the social cleavages present in the northern plains like caste. However, it is important to note that these identities emerged as a result of geographical differences. The conflict between the hill and plains communities served as a crucial catalyst in the formation of distinct identities, particularly for the hill tribes who sought to differentiate themselves from the perceived cultural and political dominance of the plains populations. For example, due to the demand of Assamese as an official language the hill tribes especially felt threatened (Inoue, 2005) B. M. Pugh was a Khasi leader who was in favor of creating a state consisting of hill areas only. He wished to combine present day Meghalaya, Nagaland, Arunachal Pradesh, Mizoram together but the

motion didn't go through as the central government feared divisions on the basis of religious lines i.e. formation of a Christian state (Karlsson, 2013). However, this did not stop from further divisions from happening as there was soon a rise of conflicts among these tribes. The most violent and recent are the Kuki (tribe in mountains) and Metei (tribe in plains) as tensions rose in Manipur. Examples of separatist movements due to geographical differences also include the long-standing demands for a separate state of Bodoland within Assam and the autonomy movement of the Karbi community (Sarma, 2017). Apart from geographical based divisions, economic disparities also played an important role as hill tribes were often neglected and received minimal support making them feel alienated from the mainland India. Economic neglect was an important factor contributing to the rise of the United Liberation Front of Assam (ULFA) insurgency (Chima & Saikia, 2023). It is interesting to note what caused the rise of a separate strong hill identity across multiple states despite presence of strong ethnic divisions which effected the rest of India.

The identity of "Pahari" or not is also seen in the ENP values of states like Himachal or Uttarakhand in both assembly and Lok Sabha elections as they soon converge to two after the formation of state. However, identities is not a complete explanation to these values as formation of identities is a fluid process and there are many external factors effecting. It gives us a broad explanation of what the reason, however pinpointing the exact reason is difficult to do so.

## 4.4 Structural Differences: The Indian Case

In the previous chapter, we observed that mountain societies outperformed their plain counterparts on various social indicators. This section examines gender and political disparities between mountainous and plain regions to evaluate whether mountain societies, as suggested by the Zomia framework, possess distinct advantages.

### 4.4.1 Political Differences: Plains v/s Mountains

As Scott argued that plains and mountains are structurally different, social differences like difference between kinship and family structures, economic freedom of women and matrilineal social norms were not the only differences observed between the Zomia and lowland areas. These regions also diverged in their political structures and hierarchies. In the Zomia framework, mountain societies tend to be more decentralized, mobile, and egalitarian, while plain societies are more settled. Plain societies are characterized with more centralized authority and rigid hierarchies (Hammond, 2011).

Political organization in the hills tends to be local and kinship based (village councils, clan elders, tribal chiefs) rather than the hierarchical structures and a top-down bureaucracy. Many highland groups formed egalitarian or acephalous (groups with no leader) communities with no permanent chiefs or with only weak leadership roles. Scholars have argued that this was a deliberate choice among these societies. As Scott explains, in general, Zomia's highlanders "paid neither taxes to monarchs nor regular tithes to a permanent religious establishment". This is opposite to the valley people who were often forced to pay

taxes to the church and the state. Local moneylenders often worsened the situation by employing brutal force to collect taxes, which were considered a birthright of the monarchy. For example, the jizya tax was imposed on non-Muslims and the development of the zabit system and the dahsala taxation method during the medieval period (Moosvi, 1973). Highland societies often favored mobility which led to the development of practicing shifting cultivation or the slash and burn agriculture. These crops are easy to scatter and harvest at different times, making it hard for would-be tax collectors to confiscate a single big harvest. The lowland states depended on intensive agriculture (irrigated rice, canals, dams) which became the primary reason for the central administration and stationary peasant communities. Scott further explains in his series of lectures (J. C. Scott, 2005) about how the hill people were incredibly diverse as they spoke hundreds of distinct languages and dialect. Some groups like Akha of Burma and the Hani of China shared similar origins (Boonyasaranai, 2014) but diverged with time and became culturally distinct. Due to numerous groups and small amount of groups, no group emerged on top. The highlanders refusal to homogenize or fully embrace lowland identities was another form of political defiance. Lowland states typically saw the surrounding hills as lawless peripheries to be exploited or pacified when possible. Valleys would often conduct slave raids to exploit the highlands and loot their resources (Walker, 1999). Captives from hill tribes were used either as slaves or soldiers forcefully into the state societies. Hence, Zomia has shown us how there were cultural and political divides between the mountain and plains.

Given these political differences, mountain societies often had a difficult relationship with the plain states and even the post-colonial nation-state. This has been true not just for the Himalayan states of India, but other post-colonial countries like Pakistan, China, Myanmar, etc. Labelled backward and/or 'tribal' by the colonial state due to their non-state polities, relatively egalitarian political economy and less social hierarchy, mountain societies were also marginalized and 'peripheralized' by the post-colonial nation-state. However, their remote, peripheral locations made this region important in military - strategic terms too, particularly after the Sino-Indian war of 1962. Border making had started in the 19th century itself as the British tried to fix cartographic lines in the fluid historical geography of the Himalayas and that project remains unfinished, deeply contested and conflict-ridden (Acharya, 2022; Guyot-Rechard, 2017; Noorani, 2010). Due to these mountains being porous, it allowed for a 1600+ kilometer border to be open with Myanmar as Indian officials have officially acknowledged the difficulty in closing the same (Bureau, 2024). From a different perspective, Alam, 2008 argued that the Western Himalayas could not be studied using social science concepts developed from a study of plains societies. He drew on the example of the Beas, Sutlej and Tons river valleys to describe how the apparatus of the modern state, introduced by colonialism, were what made these historically distinct regions a part of India as it emerged in the 20th century.

#### **4.4.2 Gender Expression: Plains v/s Mountains**

Scott has argued that mountain societies are often more egalitarian and allowed for more gender expression, and even having matrilineal kinship patterns in some cases. This is in contrast with the

plain societies which are starkly different due to their patrilineal and male-centered lineage systems. This is clearly evident in **kinship and family structures of the mountain societies** example, in Meghalaya the Khasi and Garo tribes are matrilineal. The youngest daughter inherits the ancestral property, children take their mother's surname, and husbands relocate to their wife's maternal home after marriage (Allen, 2012). Plain states societies were influenced by Confucian, Hindu or Islamic law and tended to formalize male authority in family and property matters (e.g. requiring sons for inheritance, emphasizing female chastity and patrilocal marriage). These kinship laws have been there for centuries and are still seen in the modern day. It is important to note that this was not limited to kinship laws only. Women's economic roles in mountain communities have generally been as prominent as men's. Women would take charge of household gardens and tend to them. As highland societies were mostly self-reliant, women's labor was more visible and indispensable giving them a better economic status. This is not only visible in the Khasi society but, it is also seen in the Lahu people of southwest China (a Tibeto-Burman hill group). Lahu men and women share responsibilities in farming, decision-making, and a married couple is considered a single social unit in community affairs (Du, 2015). This egalitarian division of labor has endured among the Lahu, even in the face of sustained pressure from the patriarchal Chinese state over the past two centuries. Plains have often restricted the role of women to childbearing homes and informal markers which makes their value invisible in the economic markets. Additionally, premarital sex by women might be socially tolerated and women can remarry without stigma. This is seldom allowed in orthodox lowland cultures that emphasized female chastity and one-time marriage alliances (often for political or economic gain). Men often hold positions of responsibilities in public spaces, politics etc. Some highland cultures even allow women to serve as clan heads or spiritual leaders. For example, numerous ethnic groups in the Southeast Asian Massif have traditions of female 'shamans' who guide towards a spiritual life. However, a few religious positions are often excluded women from leadership (e.g. only men could become Buddhist monks of high rank or Confucian scholars). In valley societies it is often not the case and women had to endure long struggle movements in order for equal rights. In the above-mentioned example of matrilineal societies of Khasi hills, men were often allowed to control the village councils (dorbar) (News & Media, 2011; Post, 2015). In plains women's autonomy was often curbed by strict marriage customs, purdah or seclusion practices (in some Hindu and Muslim kingdoms). These restrictions were often reinforced by legal codes that emphasized obedience to fathers and husbands (Devi & Kaur, 2019; Papanek, 1973).

In the previous chapter under NFHS analysis, we saw how the mountain states performed better on indicators which showed better lives for women. This has been a historical occurrence as in Uttarakhand and Himachal women have often helped by working in fields and forests which made them economically productive and helped them learn relevant skills too (Gooch, 2014). In Plains "ghoonghat" or veil was forced to cover women's face. The veil was thought to emphasize on women purity and forced them to stay at home, not being touched. This limited their life and growth and often dependent on their father/husbands making a patriarchal society (Chowdhry, 1993). Practices like Sati were prevalent in North India especially Rajasthan among the Rajput community. *Sati was self-immolation*



regions became Congress strongholds and were reluctant to share resources with newer areas and funding allocation based on population often disadvantaged the newer regions. The newer agricultural zones became BJP strongholds after the party successfully mobilized local pressure groups. Attempts by parties like BSP and Himachal Vikas Congress to establish themselves have been unsuccessful (Chauhan & Ghosh, 2004). This is also visible in the development model proposed by Yashwant Singh Parmar who was the first chief minister of Himachal Pradesh. He presented to the central government that "plains oriented model of development" would not work for the state. The central government at that time in their five year plan proposed to focus on industrialization. However, in Himachal they proposed to focus on rural roads, horticulture, and social services rather than heavy industrialization. To include the remote areas like Lahaul Spiti, Kinnaur which could be seen as "Zomia pockets" of Himachal a special force named Task Force on the Development of Tribal Areas and an Expert Committee on Tribal Development were created. Under the program border roads were built to connect these regions and were coerced into the state structure without much resistance (for State Effectiveness, 2020). The state has allowed them to retain their cultural autonomy leading to the formation of "microcosms". Microcosms are defined as "A small, self-contained world that reflects or represents a larger system of reality". For example the village of Malana in Kullu district also known as the "hermit village" has its own ancient council and deity governance. Malana has historically had a great autonomy under their deity Jamlu, and historically kept the nearby kingdoms at bay. Malana has argued to be one of the longest surviving Zomia pocket, but it is now slowly being brought into the state control with them sending representatives to the Panchayat and when the authorities interrupted their cannabis cultivation (Axelby, 2015). Thus, in Himachal the trend has been consolidation of state authority in the mountains, balanced by respect for local culture.

#### 4.5.2 Manipur

Manipur presents itself as a very interesting case as it has a clear geographic difference. Inside Manipur is a valley which is surrounded by the hills on all its sides. This is even visible in the Lok Sabha elections as it has two constituencies Inner and Outer Manipur. After Manipur became a full state in 1972, the hill tribes suddenly found themselves under a state government largely run by valley elites (the Meitei). They were seen as an extension of the colonial rule which didn't settle with the hill tribes. In the Naga areas of Manipur's hills, the NSCN (National Socialist Council of Nagalim) spread the idea of "Greater Nagaland" (Nagalim) to unite Naga tribes in all the hill regions across Manipur, Nagaland, and Burma. Even the structure of governance is different in the plains and mountains. Imphal valley has a strong presence of state structure with government run schools, police stations etc. However, the hill area is a part of Autonomous District Councils to give them more freedom to take their own decisions. In India, Autonomous District Councils (ADCs) are "constitutionally recognized bodies established under the Sixth Schedule of the Indian Constitution". However, Manipur's ADCs have relatively less powers and have often been seen as center's intervention, hence they have been non-functional and ignored for a long time. Additionally, land ownership in the hills is governed by law and even people from Imphal

valley cannot buy land in hills under the Manipur Land Revenue and Land Reforms Act (MLR and LR) of 1960. Manipur state government has historically not interfered with tribal land. Imphal valley enjoys relatively better infrastructure whereas as the hill areas lag in healthcare, infrastructure and economic opportunities creating more unrest. (Lacina, 2009)

Scholars have shown that although states like Tripura, Mizoram were successful in creating a single "Mizo identity", this experiment failed grandly in Manipur as some presented that the identities created in other states interfered in creating a collective identity in Manipur (Hassan, 2007). Manipur became a hot zone of politics due to the proximity of the Naga, Kuki and Meitei tribes which are fighting for independence from the state and are also engaged in an internal tribal conflict. Although the tribes are from similar lineage, the fault lines between them are getting bigger considering the current context. Metei tribes are dominant in the plains and are almost 70% of the population in Manipur (Arora & Kipgen, 2012). Nagas and Kukis occupy the mountains and there is a huge fight for resources which are already limited. Metei's have consumed a lot of the resources and refuse to share them with Nagas and Kukis which has led to increasing fault lines between them. There have been lack of efforts by the government to recognize the Nagas and Kukis as the Metei language called as "Manipuri" has led to a rising feeling of alienation.

Hence, we observe that Manipur's highlands are politically, structurally and government wise different from the valley. This resonates strongly with Zomia as the "Zones of Refuge" which have directly avoided a centralized state power.

Highlanders in Manipur managed to bargain for more autonomy given their special status in the constitution but, it has led to more violence and division in the state.

## 4.6 Conclusion

In conclusion, this chapter argues that strategic voting provides an insufficient explanation for the varied adherence to Duverger's Law across India. Instead, deep-seated structural and identity-based factors, significantly shaped by the mountain-plain geographic divide. Studies revealed distinct patterns in identity politics, kinship structures, gender roles, and political organization between highland and lowland areas, drawing parallels with concepts like Zomia. However, it is now accepted that with development and modern infrastructure, the older form of structural distinction between highland and lowland is fading as these regions are now integrated into the nation-state. Murton emphasized on the function of road building in the Himalayas and how these integrate the mountain societies to the market economies of the plains (Murton, 2013) and, these roads have narrowed the gap between the mountains and plains and helped the state to slowly gain control over these remote areas.

Case studies of Himachal Pradesh and Manipur illustrated how these geographic and social cultural differences translate into unique political landscapes and electoral outcomes, often diverging from expectations based solely on electoral mechanics.

## Chapter 5

### Conclusion

#### 5.1 Overview

This thesis investigated the impact of geography on the political and social landscapes of India. Through the lens of electoral competition and party systems using the Laakso and Taagepara Index, this study provides quantitative evidence that there could be a structural difference between mountain and plains polities in India. It aligns with the anthropological, sociological and historical scholarship which has argued for a similar structural distinction between mountain and plains societies by indicating that even electoral behavior in the recent past arranges itself into this geographical divergence. Guided by theoretical frameworks of political geography, electoral studies, and particularly James C. Scott's concept of "Zomia" as we test the hypothesis using a quantitative approach.

Our study has revealed that mountain states of India have consistently fewer effective parties than the plains states and show a clear trend of converging towards the two party competition system. While the negative slopes in ENP trends vary among the mountain states, the general pattern is that overall there is a decrease in ENP values. In contrast, plains states exhibit higher ENP values with positive slopes due to increasing party system fragmentation. This is particularly seen in state assembly elections for plains where the ENP values have steadily increased over the decades and frequently surpassing the moderate threshold of 2.5 and often exceeding the higher threshold of 3.0. We have found a statistically significant difference between mountain and plains states, and a post-hoc analysis using Cohen's d score confirms that the results are not coincidental. The examination of gender dynamics through NFHS data provided a strong evidence for structural differences between the two regions. We choose indicators like child marriage, female literacy, contraceptive use and breastfeeding practices to test for the difference. Using the rankings from the indicators, we make a composite ranking and find that the mountain states dominate the composite rankings derived from these indicators. States like Himachal Pradesh, Mizoram, Sikkim, and Nagaland frequently appeared among the best performers, compared to plain states like Bihar, Rajasthan, Uttar Pradesh, and Jharkhand, which consistently occupied the lower ranks despite nationwide improvements over time. We find that the mountain states consistently outperformed the plain states.

In our study we have tried to back our quantitative findings by conducting an in depth qualitative review. We found that strategic voting has found mixed evidence in literature in Indian societies. On one hand Choi, 2009 suggests that strategic voting might be present, recent studies by Ziegfeld, 2020 using more survey data suggests against this idea. Hence, it is difficult to take only strategic voting into account. We find that the observed differences are not merely a fluke but appear rooted in historical trajectories, social structures, political economies, and state society relations characteristic of highland and lowland zones. We also look at the process of identity formation. The electoral politics in the plain region has tended to develop its political forces based on caste and religious identity whereas the mountains have produced numerous identities that emerged through opposition against both plain dominant beliefs. This often results in the formation of broader regional ("Pahari") or ethnic identities (Naga, Kuki, Mizo, etc). We observed examples of how the kinship systems, markets, culture allowed women more freedom in the mountain areas like the examples of matrilineal societies in the Khasi tribes is an important example. Whereas oppressive policies like the "purdah" or "sati" in the plains points towards the historic oppression which women had to face. However, it is difficult to attribute the difference solely to identities, as they are shaped by multiple intersecting factors. These findings align with Scott's arguments of "Zomia", suggesting that highland societies are historically less penetrated by patriarchal state structures and women's labor is highly visible and valued which tend to foster greater gender equality and autonomy for women. The only difference was in contraceptive use which can be explained by factors related to remoteness and accessibility of modern healthcare services and family in remote mountains. We also show that the geographical differences not only exist at a national level but also the state level. These case studies reveal separate outcomes from this integration process because Himachal Pradesh experienced stability while Manipur struggled with continuous conflict yet show both regions share the persistent importance of their hill valley geographical and political division.

## 5.2 Limitations and Future Work

This study avoids testing explicitly for the potential influence of variables such as literacy rates as well as fertility levels, per capita income and other demographic indicators. The described elements play major roles in molding political conduct and account for some regional dissimilarities seen in party system structures. We should emphasize that our main purpose was to develop an empirical validation based on Duverger's Law. The results demonstrated that the election systems of India's mountain states show two-party system characteristics which is different from ~~The assumptions point toward the possibility that different political cultures within mountain societies cause the observed results, yet we avoid definitive causal conclusions~~ research results act as preliminary evidence to support predominantly theoretical interpretations within state-making and mountain society scholarship. But what would the results be if we controlled for literacy and education, or for demographic features? Can there perhaps be other aspects which we are not even cognizant to? What explains the variation?

within the mountain states? What other factors may influence political culture and behavior in mountain states other than geography dependent on historical sociology?

Despite these unanswered questions, we can state that the findings of our study contribute to our understanding of how geography intersects with political institutions and suggests that theories of party system development, perhaps even theories of federalism, need to account for historical geography. Our study also opens up paths for other studies which not only explore the unanswered questions listed above, but also explore whether similar patterns exist in other mountain societies globally and investigate specific mechanisms through which historical geography influences party system development. It provides a fillip to further comparative studies both within nation-states and among them. Extending these studies to the quarter century between 1952 and 1977 could also qualify our findings. We also see the possibility of going more granular with quantitative studies of electoral behavior and political culture at municipal and panchayat levels, and comparing them to state and national levels.

Given all these caveats, limitations and untapped possibilities that we have listed out, we still feel that our study has put forward a strong case for extending the scope of Zomia from a purely historical and anthropological concept to one which can also help explain contemporary politics. In fact, Scott argues that Zomia, as a distinct historical geography, starts to fade out in the second half of the 20th century. The present study suggests that this may not be so, or at the very least, the fading out is a far slower process than the votaries of Zomia have argued for.

This thesis explains the necessity of incorporating geographical perspectives into the study of India. The specific features and difficulties faced by India's mountain populations need specialized governmental response while the nation follows its development and modernization trajectory because these communities maintained their distinct identity through their connection to both land and state. Hills and valleys in India work as vital elements which actively determine how identities emerge along with controlling power distribution and determining government capabilities and human possibilities for thriving. India's complete understanding requires studying both the active plains region and hearing the particular sounds emanating from mountain areas. The investigation of particular state policies including infrastructure development alongside resource distribution and governance changes must constitute a focus of scientific inquiry for understanding regional political and social transformations.

## Bibliography

- (1991). <https://www.eci.gov.in/>
- Acharya, A. (2022) *Boundaries and borderlands: A century after the 1914 simla convention*. Taylor & Francis.
- Alam, A. (2008) *Becoming india: Western himalaya under british rule*. Cambridge University Press under the Foundation Books imprint. <https://books.google.co.in/books?id=gYQMAQAAMAAJ>
- Ali, N. (2019) *Delusional states*. Cambridge University Press. <https://books.google.co.in/books?id=mi-ZDwAAQBAJ>
- Ali, S. S., & Rehman, J. (2013) *Indigenous peoples and ethnic minorities of pakistan: Constitutional and legal perspectives*. Routledge.
- Allen, T. (2012, January). Meghalaya, india: Where women rule, and men are suffragettes. <https://www.bbc.com/news/magazine-16592633>
- Anaba, U. C., Johansson, E. W., Abegunde, D., Adoyi, G., Umar-Farouk, O., Abdu-Aguye, S., Hewett, P. C., & Hutchinson, P. L. (2022). The role of maternal ideations on breastfeeding practices in northwestern nigeria: A cross-section study. *International breastfeeding journal*. <https://pmc.ncbi.nlm.nih.gov/articles/PMC9438163/>
- Anand, B. (2015). Downfall of an umbrella party. *Economic and Political Weekly*, 50(11), 5–5.
- Anderson, B. (1991) *Imagined communities: Reflections on the origin and spread of nationalism*. Verso. <https://books.google.co.in/books?id=4mmoZFtCpuoC>
- Ankit, R. (2018). Caste politics in bihar: In historical context. *Human and Sociology of South Asia*, 12(2), 115–136.
- Arora, V., & Kipgen, N. (2012). The politics of identifying with and distancing from kuki identity in manipur. *Sociological Bulletin*, 61(3), 429–449.
- Axelby, R. (2015). Hermit village or zomian republic? an update on the political socio-economy of a remote himalayan community. *European Bulletin of Himalayan Research*, 46, 35–61.
- Basistha, A., Dhillon, A., & Roy Chaudhuri, A. (2024). Elections and rural road construction: Evidence from india Available at SSRN 4773192.
- Bodley, J. H. (2012) *Anthropology and contemporary human problems*. Rowman Altamira.
- Bodley, J. H. (2014) *Victims of progress*. Rowman & Littlefield.
- Bol, D., & Verthe, T. (2019). Strategic voting versus sincere voting. *Encyclopedia of Politics*. <https://api.semanticscholar.org/CorpusID:211440442>

- Boonyasaranai, P. (2014). Common akha orthography: Transnational ethnicity constructions of han-  
akha in the upper mekong region. In *Challenging Way of Life of Ethnicities in the Mekong Region*, 149–172.
- Bureau, T. H. (2024, September). Government sanctions 31,000 crore to fence myanmar border. <https://www.thehindu.com/news/national/government-sanctions-31000-crore-to-fence-myanmar-border/article68655939.ece>
- Candland, C. (1997). Congress decline and party pluralism. *Journal of International Affairs*, 19–35.
- Chauhan, R. K., & Ghosh, S. (2004). Bipolar contest. *Economic and Political Weekly*, 5505–5507.
- Chhibber, P., & Kollman, K. (1998). Party aggregation and the number of parties in india and the united states. *American political Science review*, 92(2), 329–342.
- Chhibber, P., & Kollman, K. (2009). *The formation of national party systems: Federalism and party competition in canada, great britain, india, and the united states*. Princeton University Press.
- Chhibber, P., & Murali, G. (2006). Duvergerian dynamics in the indian states: Federalism and the number of parties in the state assembly elections. *Election Politics*, 12(1), 5–34.
- Chima, J., & Saikia, P. (2023). *Surgency in india's northeast: Identity formation, postcolonial nation/state-building, and secessionist resistance*. Routledge.
- Choi, J. (2009). Strategic voting in india: Its extent and determinants in the 2004 general election. *Voter Behavior Survey*, 49(4), 609–624.
- Chowdhry, P. (1993). Persistence of a custom: Cultural centrality. *Journal of Indian Politic*, 91–112.
- Clough, E. (2007). Strategic voting under conditions of uncertainty: A re-evaluation of duverger's law. *British Journal of Political Science*, 37(2), 313–332.
- CODE, S. (1979). Volume i. *Ontario Ministry of Transportation and Communications*.
- Cox, G. W. (1997). *Making votes count: Strategic coordination in the world's electoral systems*. cambridge university Press.
- D'Alimonte, R., Grofman, B., & De Sio, L. (2012). Extending duverger's law when parties become blocs: Evidence from italy under three different electoral systems, *World Bank Group, Miami, FL*.
- Das, P. (2008). Management of india-china border area: A case study of arunachal pradesh. *Foreign Affairs Journal*, 3(3), 92–105. Retrieved April 2, 2025, from <http://www.jstor.org/stable/45340743>
- Delawarde-Sas\*, T., Mercerat\*, C., Adamiste, M., Pigeon-Gaén, Delawarde, C., Nouchi, J., Comtois, J., Bakhty, S., & Poissant, J. (2024). Is there room for mothers' agency in the choice to breastfeed? a qualitative analysis of mothers' views on messages promoting breastfeeding in quebec. *European Journal of Midwifery*, 8(January), 1–7. <https://doi.org/10.18332/ejm/174931>
- DeSouza, P., & Sridharan, E. (2006). *India's political parties*. SAGE Publications. <https://books.google.co.in/books?id=NC9dDwAAQBAJ>

- Devi, L., & Kaur, M. (2019). Purdah or ghunghat, a powerful means to control women: A study of rural muslim and non-muslim women in western uttar pradesh. *Asian Journal of Gender Studies*, 26(3), 336–349. <https://doi.org/10.1177/0971521519861162>
- Diwakar, R. (2007). Duverger's law and the size of the indian party system. *Party Politics*, 13(5), 539–561.
- Diwakar, R. (2010). Party aggregation in india: A state level analysis. *Party Politics*, 16(4), 477–496.
- Du, S. (2015). University of illinois urbana-champaign “Chopsticks Only Work in Pairs”: Gender Unity and Gender Equality Among the Lahu of Southwest China”. <http://hdl.handle.net/2142/85322>
- Dunleavy, P., Diwakar, R., & Dunleavy, C. (2008). Is duverger's law based on a mistake?
- Duverger, M. (1954). *Political parties*. Methuen London.
- Eberhard, K. (2017, June). This is how new zealand fixed its voting system. <https://www.sightline.org/2017/06/19/this-is-how-new-zealand-fixed-its-voting-system>
- Farooqui, A., & Sridharan, E. (2016). Can umbrella parties survive? the decline of the indian national congress. *Commonwealth and Comparative Politics*, 54(3), 331–361.
- Farrelly, N. (2013, January). Nodes of control in a south(east) asian borderland. *Borderland Lives in northern south asia* (pp. 194–213). Duke University Press eBooks. <https://doi.org/10.1215/9780822377306-009>
- Fey, M. (2007). Duverger's law without strategic voting. *Voting Paper*.
- Forand, J. G., & Maheshri, V. (2015). A dynamic duverger's law. *Public Choice*, 165, 285–306.
- for State Effectiveness, T. I. (2020, September). <https://effectivestates.org/publication/himachal-pradesh-understanding-state-level-transition-in-india/>
- Gaines, B. J. (1999). Duverger's law and the meaning of canadian exceptionalism. *Canadian Political Studies*, 32(7), 835–861.
- Gallagher, M. (1991). Proportionality, disproportionality and electoral systems. *Electoral Studies*, 10(1), 33–51. [https://doi.org/10.1016/0261-3794\(91\)90004-C](https://doi.org/10.1016/0261-3794(91)90004-C)
- Golosov, G. V. (2010). The effective number of parties: A new approach. *Party Politics*, 16(2), 171–192.
- Gooch, P. (2014). Daughters of the hills: Gendered agricultural production, modernisation, and declining child sex ratios in the indian central himalayas. *Boserup's Legacy on Sustainability: Orientations for Contemporary Research*, 159–173.
- Graeber, D. (2004). *Fragments of an anarchist anthropology*. Prickly Paradigm Press.
- Gupta, D. (1985). The communalising of punjab, 1980–1985. *Economic and Political Weekly*, 1185–1190.
- Guyot-Rechard, B. (2013). *Shadow states: India, china and the himalayas, 1910–1962*. Cambridge University Press. <https://books.google.co.in/books?id=FbktDQAAQBAJ>
- Hammes, T. (2017). Leave mountain people alone for National Strategic Studies.
- Hammond, R. (2011). The battle over zomia. *Chronicle*. <https://www.chronicle.com/article/the-battle-over-zomia/>

- Harney, S., & Moten, F. (2013). The undercommons: Fugitive planning and black study.
- Hassan, M. S. (2007). *The state and societies in northeastern india: Explaining manipur's breakdown and mizoram's order*. London School of Economics; Political Science (United Kingdom).
- Heath, O., & Ziegfeld, A. (2022). Why so little strategic voting in Indian Political Science Review, 116(4), 1523–1529.
- Horgan, J. G. (2008). Leaving terrorism behind: Individual and collective disengagement.
- Hrynkow, C. (2018). Situating earth democracy: Vandana shiva on agroecology, contemporary politics and resilience Political Studies Review, 16(3), 205–216.
- Hussain, S. (2015). *Remoteness and modernity: Transformation and continuity in northern pakistan*. Yale University Press. <https://books.google.co.in/books?id=zO-5BwAAQBAJ>
- Inoue, K. (2005). Integration of the north-east: The state formation. *South-Asian Relations in the Eastern South Asia—With special focus on India's North Eastern Region*. Chiba (Japan): The Institute of Development Economics, 16–31.
- Jaffrelot, C., & Verniers, G. (2012). Castes, communities and parties in uttar pradesh. *Political Weekly*, 89–93.
- Jaffrelot, C., & Verniers, G. (2020). The bjp's 2019 election campaign: Not business as usual. *South Asia*, 28(2), 155–177.
- Jejeebhoy, S. J., Santhya, K., & Zavier, A. F. (2014). Demand for contraception to delay first pregnancy among young married women in India. *Studies in family planning*, 45(2), 183–201.
- Johari, J. C. (1975). Creation of nagaland: Triumph of ebullient infra-nationalism. *Journal of Political Science*, 36(1), 13–38.
- Kapai, Y. (2020). Spatial organisation of northeast india: Colonial politics, power structure and hills–plains relationship. *Indian Historical Review*, 47(1), 150–169.
- Karlsson, B. G. (2013). Evading the state: Ethnicity in northeast india through the lens of james scott. *Asian Ethnology*, 72(2), 321.
- Kishor, S., & Gupta, K. (2004). Women's empowerment in india and its states: Evidence from the nfhs. *Economic and Political weekly*, 694–712.
- Kitchin, R., & Thrift, N. (2009). *International encyclopedia of human geography*. Elsevier Science. <https://books.google.co.in/books?id=8isCe3cFYa8C>
- Kothari, R. (1967). India: The congress system. *American Survey*, 83–96.
- Kumar, K., Singh, A., & Tsui, A. O. (2022). Measuring contraceptive use in India. *Demographic Research*, 47, 73–109.
- Laakso, M., & Taagepera, R. (1979). "effective" number of parties: A measure with application to west europe Comparative political studies, 12(1), 3–27.
- Lacina, B. (2009). The problem of political stability in northeast india: Local ethnic autocracy and the rule of law Asian survey, 49(6), 998–1020.

- Lijphart, A. (1994, January). *Electoral systems and party systems: A study of twenty-seven democracies, 1945-1990*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198273479.001>
- Mahanta, B., & Nayak, P. (2013). Gender inequality in north east India. *Journal of Economics and Commerce, 7*, 1–13.
- Mathur, N. (2015). A 'remote' town in the Indian himalaya. *Asian Studies, 49*(2), 365–392.
- Mayer, P. (2013). Gross violations of duverger's law in India. *Indian Politics, 1*(2), 179–201.
- Michaud, J. (2017). What's (written) history for?: On James C. Scott's zomia, especially chapter 6. *Anthropology Today, 33*(1), 6–10.
- Mishra, P., & Shukla, P. (2018). Targeting the vulnerable: Witch hunting and violation of women's rights in north east India. *Parisheelan, 14*, 417–428.
- Mishra, S. (2000). *The politics of state formation in India: The case of Uttarakhand* [Doctoral dissertation, University of British Columbia].
- Moore, N. (2011). Eco/feminism and rewriting the ending of feminism: From the chipko movement to clayoquot sound. *Feminist Theory, 12*(1), 3–21.
- Moosvi, S. (1973). Production, consumption and population in akbar's time. *Economic and Social History Review, 10*(2), 181–195.
- Murton, G. (2013). Himalayan highways: Sts, the spatial fix, and socio-cultural shifts in the land of zomia. *Perspectives on Global Development and Technology, 12*(5–6), 609–621.
- National Statistical Commission, India. (2017). Survey on literacy in India [Accessed: March 2025]. <https://mospi.gov.in>
- News, G., & Media. (2011, January). <https://www.theguardian.com/world/2011/jan/18/india-khasi-women-politics-bouissou>
- Noorani, A. G. (2010). *India–China boundary problem 1846–1947: History and diplomacy*. Oxford University Press.
- The north-eastern areas (reorganisation) act*. (1971). <https://indiankanoon.org/doc/318384/>
- Office of the Registrar General and Census Commissioner, India. (1991). Census of India 1991 [Accessed: March 2025]. <https://censusindia.gov.in>
- Office of the Registrar General and Census Commissioner, India. (2001). Census of India 2001 [Accessed: March 2025]. <https://censusindia.gov.in>
- Office of the Registrar General and Census Commissioner, India. (2011). Census of India 2011 [Accessed: March 2025]. <https://censusindia.gov.in>
- Oxford University Press. (2024). Oxford English Dictionary. <https://www.oed.com>
- Pachauri, S. (2014). Priority strategies for India's family planning programme. *Journal of Medical Research, 140*(Suppl 1), S137–S146.
- Padhiari, H. K., & Ballabh, V. (2008). Inter-state water disputes and the governance challenge of water: Institutional alternatives and political economy, 174–94.

- Palfrey, T. (1989). A mathematical proof of duverger s law en models of strategic choice in politics. peter c. ordeshook, editor.
- Papanek, H. (1973). Purdah: Separate worlds and symbolic *Comparative Studies in Society and History*, 15(3), 289–325. <https://doi.org/10.1017/S001041750000712X>
- Pathak, J. (2016). North east india, sixth schedule & *Dayanand Journal of Political Science*, 77(2), pp. 235–240. Retrieved May 2, 2025, from <https://www.jstor.org/stable/26575707>
- Pautunthang, N. (2024). India: Understanding the hills-valley divide and meitei-kuki conflict in manipur. *Conflict Studies Quarterly*, (48).
- Post, T. W. (2015). Kingdom of girls: Women hold power in this remote indian village - the washington post. <https://www.washingtonpost.com/news/in-sight/wp/2015/04/17/kingdom-of-girls-women-hold-power-in-this-remote-indian-village/>
- Price, R. (2020). Rainforest villages, eighteenth-century *Historical Studies*, 13(5), 792–804.
- The punjab reorganisation act*. (1966). <https://indiankanoon.org/doc/933499/>
- Rae, D. W. (1971). The political consequences of electoral *Journal of Politics*.
- Rajasekhar, D., & Srinivasacharyulu, A. (2016). Women representation in politics: A study of panchayati raj institutions in india *Editorial Board*, 5(2), 91.
- Ramachandra Guha. (2011, November). <https://ramachandraguha.in/archives/the-past-and-future-of-the-indian-national-congresscaravan.html>
- Reed, S. R. (2001). Duverger's law is working in *Comparative political studies*, 34(3), 312–327.
- Reed, S. R. (2007). Duverger's law is working in *Japanese Journal of Electoral Studies*, 22, 96–106.
- Robinson, J. A., & Acemoglu, D. (2012). *Why nations fail: The origins of power, prosperity and poverty*. Profile London.
- Romeijn, J. (2020). Do political parties listen to the (ir) public? public opinion-party linkage on specific policy issues *Party Politics*, 26(4), 426–436.
- Roy, S. G., & Doshi, J. (2024). Politics of caste census: How bjp and mandal parties view the contentious issue *The Wire*.
- Sangari, K., & Vaid, S. (1981). Sati in modern india: A report *Economic and Political Weekly*, 1284–1288.
- Sarma, S. K. (2017). The bodoland demand: Genesis of an ethnic *Journal of Humanities And Social Science*, 22(1), 32–36.
- Scott, J. C. (2005). Civilizations can't climb hills: A political history of statelessness in southeast asia. *lecture at Brown University, Providence, Rhode Island*, 2.
- Scott, J. C. (2009). *The art of not being governed: An anarchist history of upland southeast asia*. Yale University Press. Retrieved January 20, 2025, from <http://www.jstor.org/stable/j.ctt1njkkx>
- Scott, W. H. (1970). Igorot responses to spanish aims: 15 *Philippine Studies*, 18(4), 695–717.
- Sharma, T. R. (1987). Observations on himachal *Indian Journal of Political Science*, 48(4), 494–505. Retrieved March 17, 2025, from <http://www.jstor.org/stable/41855333>

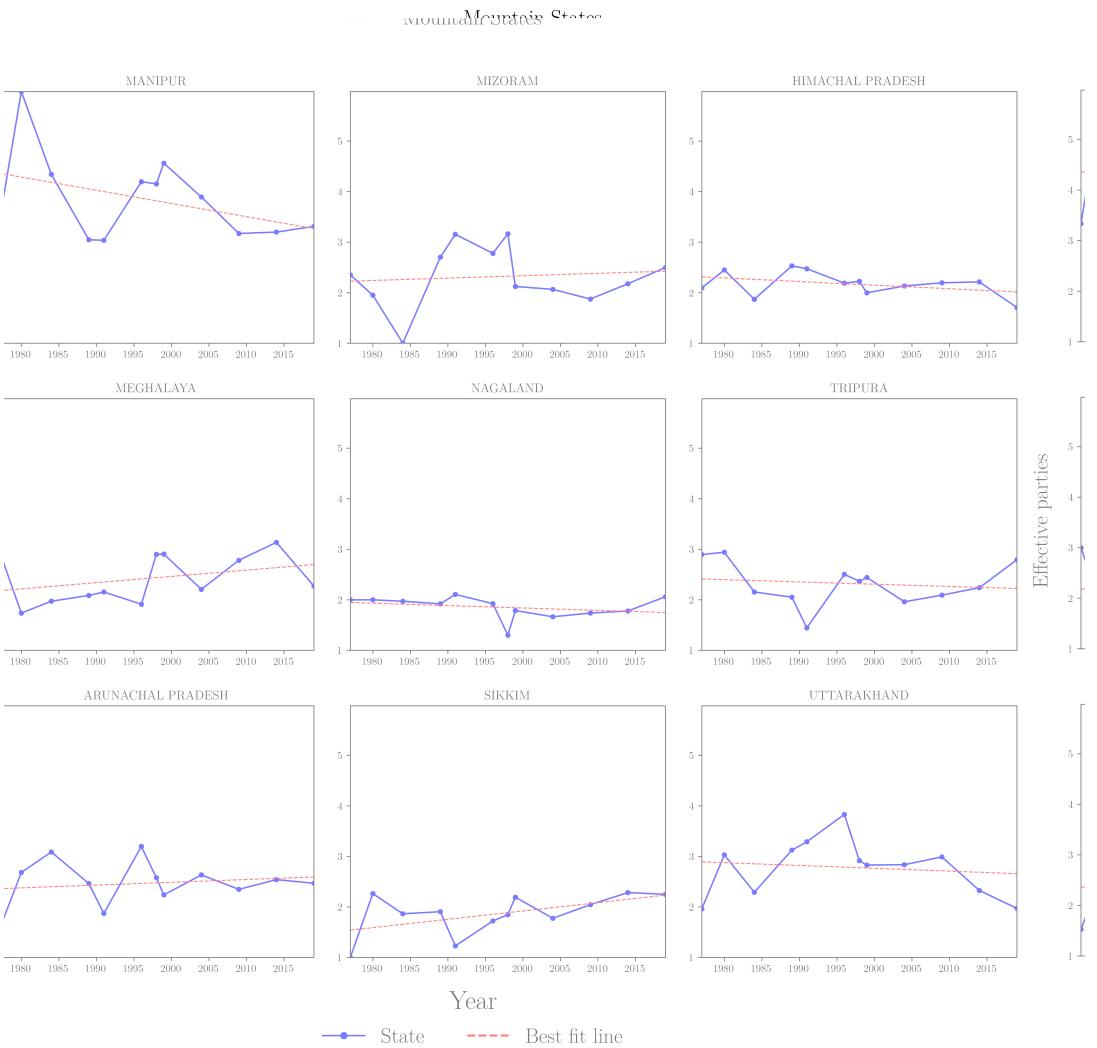
- Shastri, S. (2003). Continuity with change: Shifting paradigms in India's electoral politics.
- Shastri, S. (1991). Nehru and the dynamics of centre-state relations.
- Shastri, S., Suri, K. C., & Yadav, Y. (2009). *Electoral politics in Indian states: Lok Sabha elections in 2004 and beyond*. Oxford University Press.
- Shneiderman, S. (2010). Are the central himalayas in zomia? some scholarly and political considerations across time and space. *Journal of Global History*, 5(2), 289–312.
- Shroff, M. R., Griffiths, P. L., Suchindran, C., Nagalla, B., Vazir, S., & Bentley, M. E. (2011). Does maternal autonomy influence feeding practices and infant growth in rural India? *Social medicine*, 73(3), 447–455.
- Singer, M. M. (2013). Was duverger correct? single-member district election outcomes in fifty-three countries. *British Journal of Political Science*, 43(1), 201–220.
- Smith, A. (1937). *The wealth of nations [1776]* (Vol. 11937). na.
- Sridharan, E. (1997). *Duverger's law, its reformulations and the evolution of the Indian party system*. Center for Institutional Reform; the Informal Sector, University of ...
- Taagepera, R., & Shugart, M. S. (1989). Seats and votes: The effects and determinants of electoral systems (*No Title*).
- Took, J. (2005). *A native chieftaincy in southwest China: Franchising a tai chieftaincy under the tusi system of late imperial China* (Vol. 70). Brill.
- Vaishnav, M. (2014). A new era in Indian politics? <https://carnegieendowment.org/research/2014/06/new-era-in-indian-politics?lang=en>
- van Geffen, A. (2023). Gdldata: Global data lab r api [<https://docs.globaldatalab.org/gdldata/>, <https://github.com/GlobalDataLab/gdldata>].
- Van Schendel, W. (2005). Geographies of knowing, geographies of ignorance: Jumping scale in southeast Asia. In *Locating southeast Asia* (pp. 275–307). Brill.
- Walker, A. (1999). *The legend of the golden boat: Regulation, trade and traders in the borderlands of Laos, Thailand, China and Burma*. University of Hawaii Press.
- Wouters, J. J. (2023, September). Colonial lines and postcolonial conflicts in north east India. <https://www.theindiaforum.in/politics/colonial-lines-and-postcolonial-conflicts-north-east-india#:~:text=The%20Mizo%20Union%2C%20besides%20pursuing,an%20deliberated%20on%20joining%20Burma>
- Yadav, Y. (1999). Electoral politics in the time of change: India's third electoral system, 1989-99. *Economic and political weekly*, 2393–2399.
- Ziegfeld, A. (2021). What accounts for duverger's law? the behavioral mechanisms underpinning two-party convergence in India. *Electoral Studies*, 73, 102382.

## *Chapter 6*

## Appendix



**Figure 6.1**Lok Sabha Elections: Histogram illustrating the distribution of effective parties for mountain and plain constituencies



**Figure 6.2** Lok Sabha Elections: Mountain states: Effective parties for each state



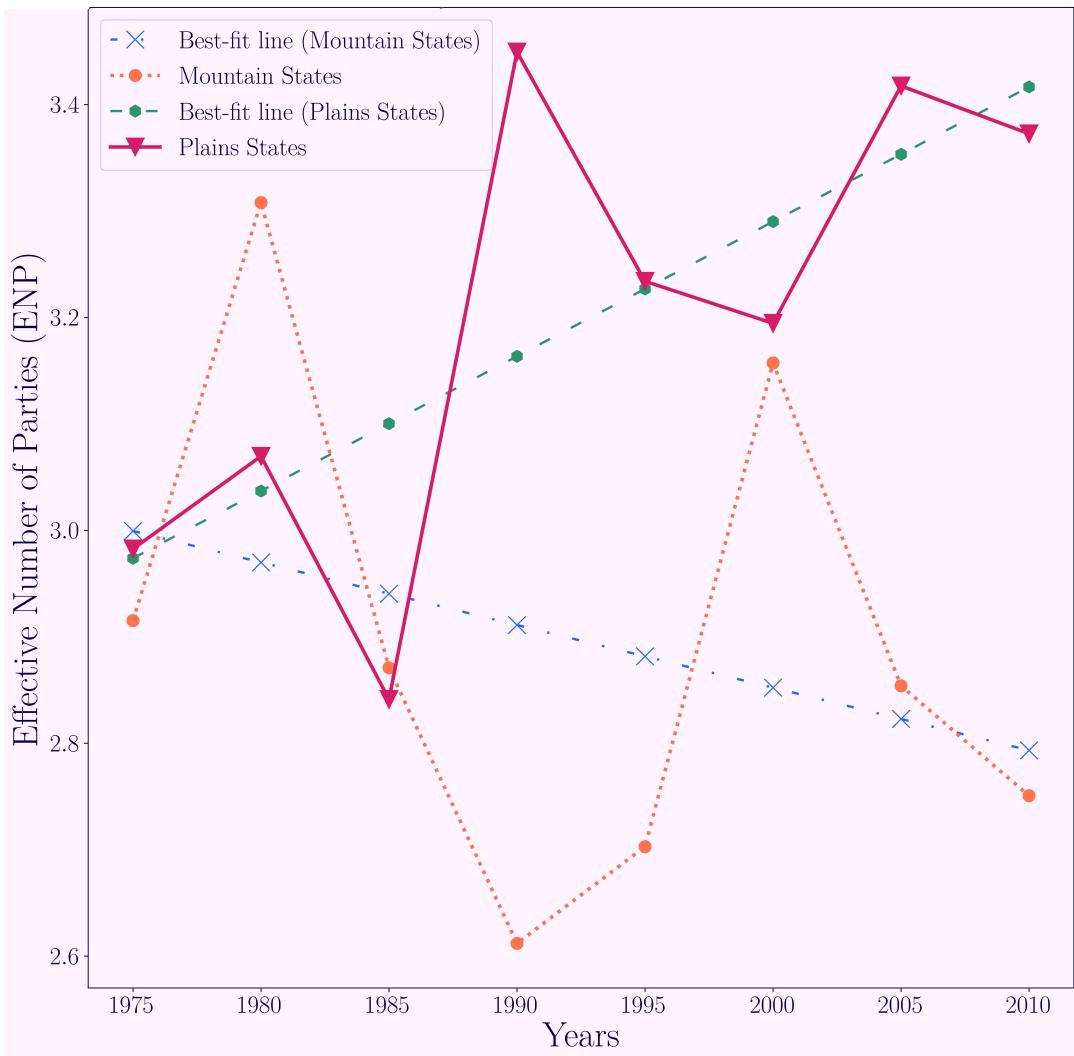
**Figure 6.3** Lok Sabha Elections: Plain states: Effective parties for each state





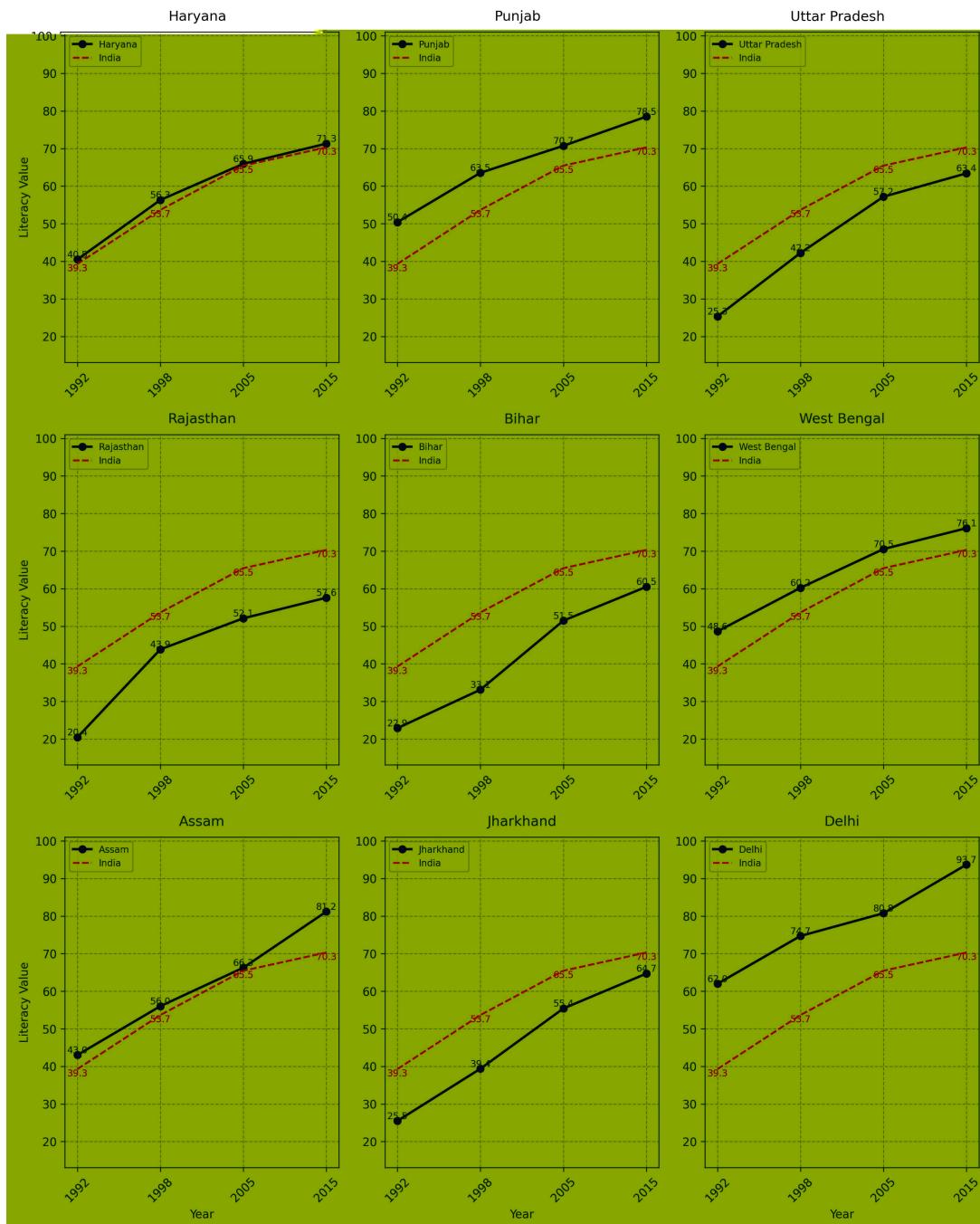
**Figure 6.6**Assembly Elections: Effective parties for each state in mountains



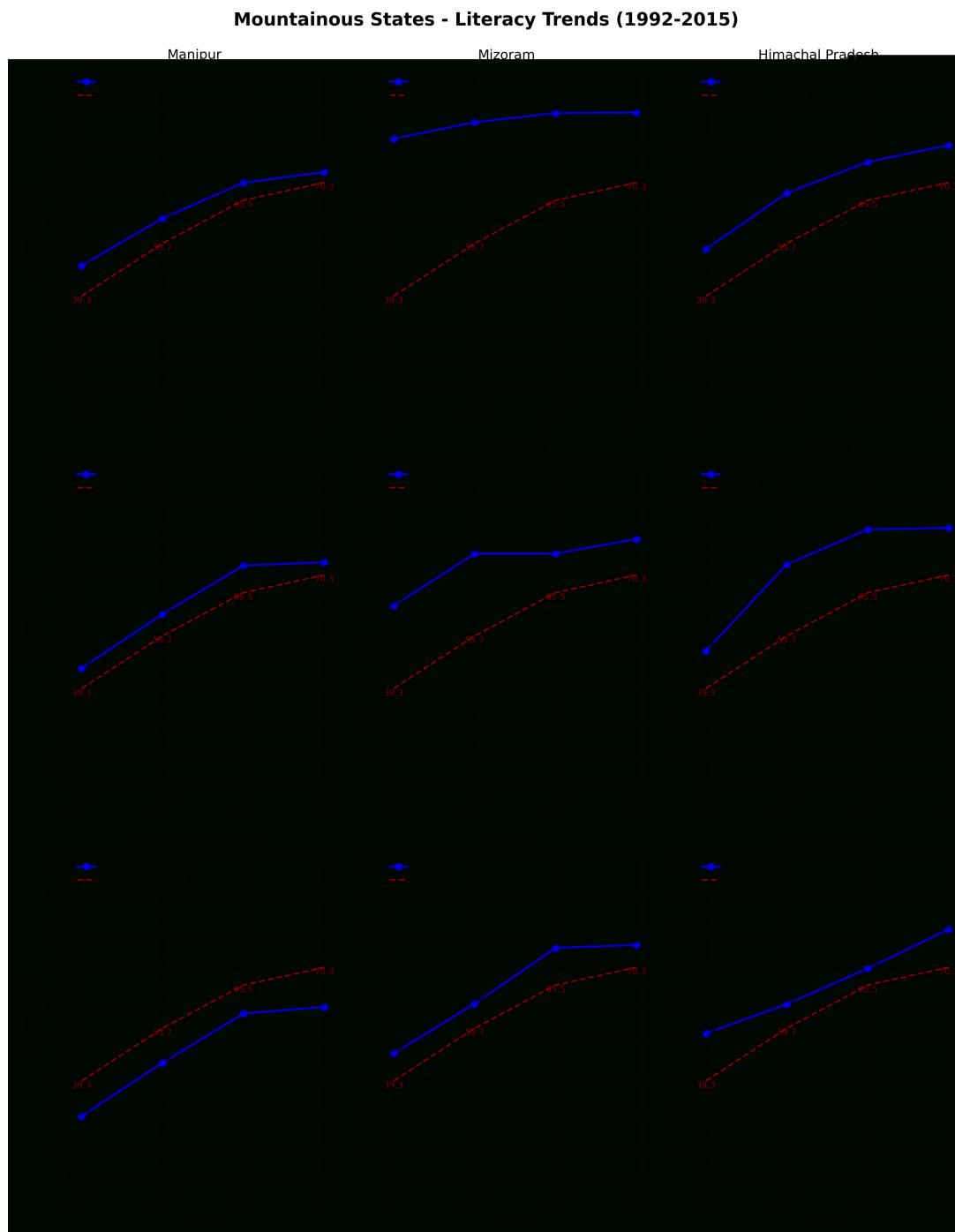


**Figure 6.8** Assembly Elections: Mountain states v/s Plain States Effective parties for entire regions

### Plain States - Literacy Trends (1992-2015)



**Figure 6.10**NFHS Analysis: Literacy in Plain States



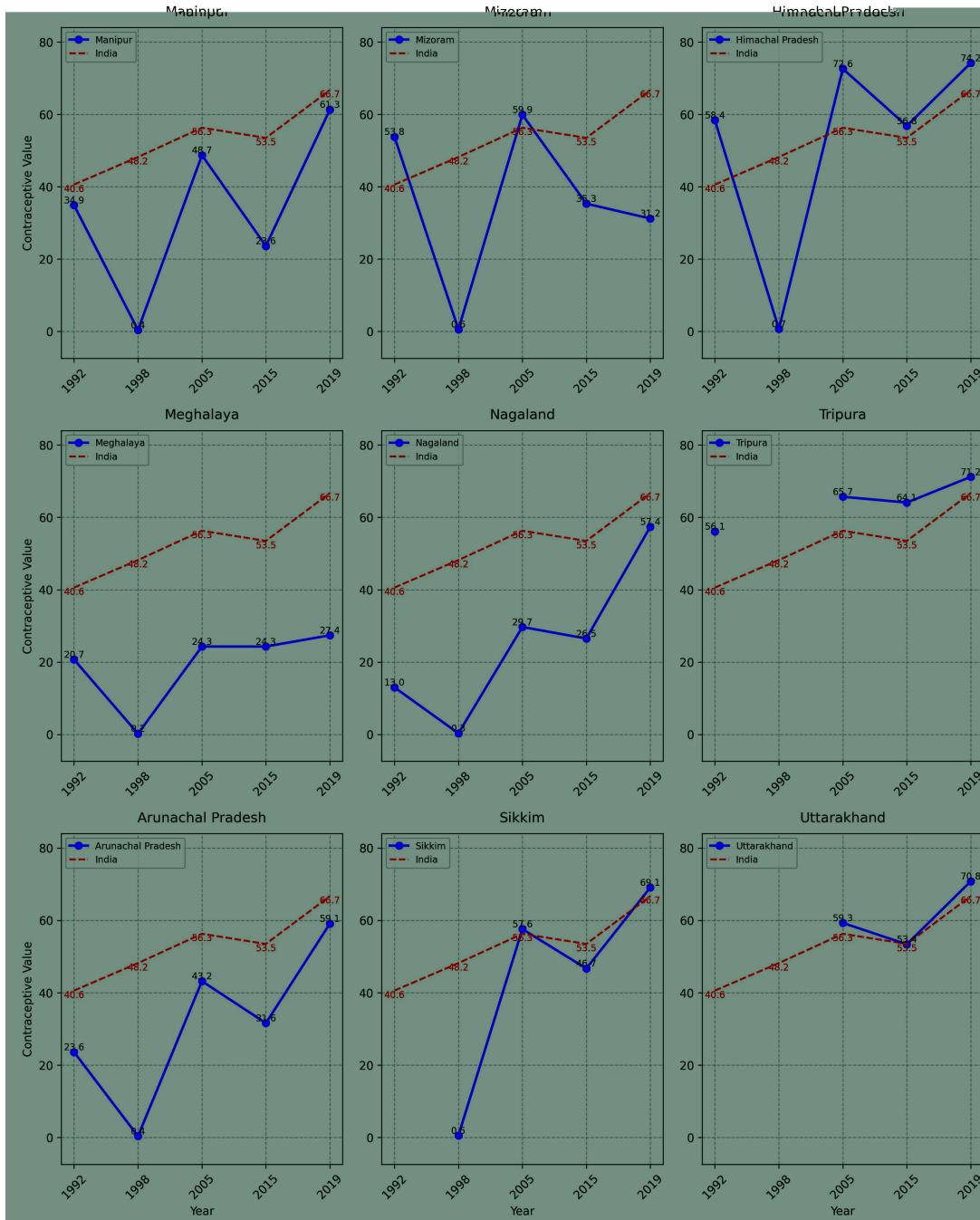
**Figure 6.11** NFHS Analysis: Literacy in Mountain States

### Plain States - Contraceptive Trends (1992-2015)



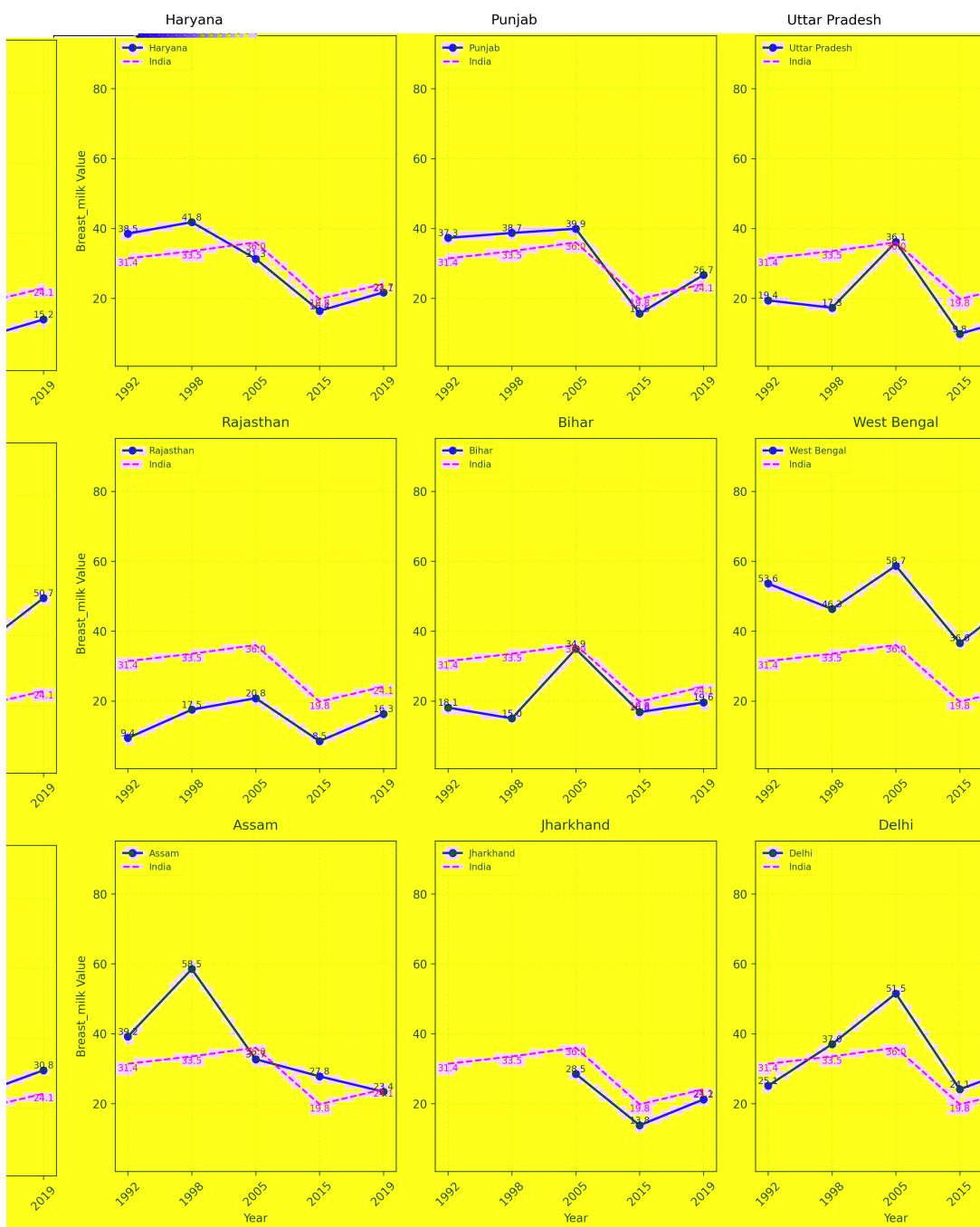
**Figure 6.12**NFHS Analysis: Contraceptive use in Plain States

### Mountainous States - Contraceptive Trends (1992-2015)



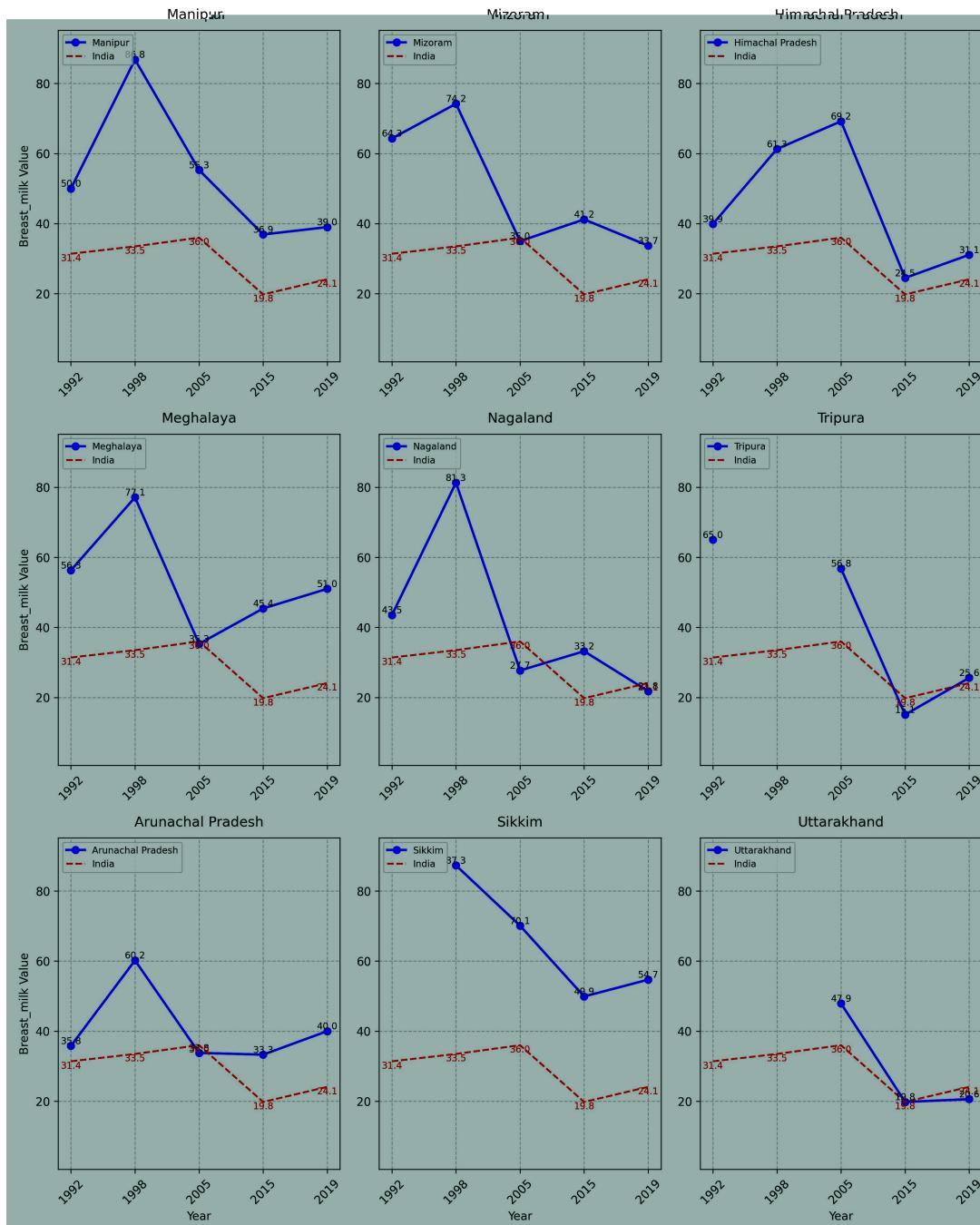
**Figure 6.13** N FHS Analysis: Contraceptive use in Mountain States

### Plain States - Breast\_milk Trends (1992-2015)



**Figure 6.14** NFHS Analysis: Breastfeeding Practices in Plain States

**Mountainous States - Breast\_milk Trends (1992-2015)**



**Figure 6.15** NFHS Analysis: Breastfeeding Practices in Mountain States

Figure 6.16NFHS Analysis: Child Marriage age in Plain States